SLV-ED10ME/ED10MPS/ED10PS/ED10SG/ED40ME/ED40PS/ED40SG/ED60ME/ ED60PS/ED60SG/ED70MN/EZ10AZ/EZ40AZ/EZ60AZ/EZ70AS/EZ70NZ

RMT-V245/V245A/V245C/V247/V247C/V247D/V248C

SERVICE MANUAL

Australian Model

SLV-EZ10AZ/EZ40AZ/EZ60AZ/EZ70AS

E Model

SLV-ED10MPS/ED10PS/ED40PS/ED60PS/ED70MN

ME Model

SLV-ED10ME/ED10SG/ED40ME/
ED40SG/ED60ME/ED60SG

Newzealand Model

SLV-EZ10AZ/EZ40AZ/EZ60AZ/EZ70NZ

Photo: SLV-ED70MN

S MECHANISM

Hi-Fi

G-CODE

- **Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENTS VI for MECHANICAL ADJUSTMENTS. (9-921-647-11)**

* The abbreviations of ED10, ED40, ED60, ED70, EZ10, EZ40, EZ60 and EZ70 contained in this service manual are indicated when these models are common to all their corresponding models as given below.

Abbreviated model name	ED10	ED40	ED60	ED70	EZ10	EZ40	EZ60	EZ70
All model names SLV-	ED10ME ED10MPS ED10PS ED10SG	ED40ME ED40PS ED40SG	ED60ME ED60PS ED60SG	ED70MN	EZ10AZ	EZ40AZ	ED60AZ	EZ70AS EZ70NZ

VHS PAL NTSC **VIDEO CASSETTE RECORDER**

MICROFILM

SONY®

SPECIFICATIONS

System

- Color system
  - ED10/ED40/ED60/ED70:
    - PAL, MESECAM, NTSC 3.58, NTSC 4.43
  - EZ10/EZ40/EZ60/EZ70:
    - PAL, NTSC 4.43
- TV system
  - ED10/ED40/ED60/ED70:
    - B/G, D/K, I
  - EZ10/EZ40/EZ60/EZ70:
    - B/G
- Channel coverage
  - ED10/ED40/ED60/ED70:
    - B/G: VHF E2 to E12/UHF E21 to E69/ CATV S01 to S05, S1 to S41
    - D/K: VHF R1 to R12, UHF R21 to R69
    - I: VHF SA4 to SA13/UHF B21 to B69/ CATV S01 to S05, S1 to S41
  - EZ10/EZ40/EZ60 (COUNTRY is set to AUS), EZ70AS:
    - VHF AS0 to AS12, AS5A, AS9A
    - UHF AS28 to AS69
    - CATV S01 to S05, S1 to S41
  - EZ10/EZ40/EZ60 (COUNTRY is set to NZ), EZ70NZ:
    - VHF NZ1 to NZ11
    - UHF E21 to E69
    - CATV S01 to S05, S1 to S41
- RF output signal
  - ED10/ED40/ED60/ED70/EZ70NZ:
  - UHF channels 21 to 69
  - EZ10/EZ40/EZ60/EZ70AS:
  - UHF channels 28 to 69
- Aerial out
  - 75-ohm asymmetrical aerial socket

Inputs and outputs

- LINE IN (ED10/EZ10/EZ40/EZ60)
- LINE-1 IN (ED40/ED60/ED70/EZ70)
  - VIDEO IN, phono jack (1)
  - Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
  - AUDIO IN (MONO), phono jack (1) (ED10/ED40/EZ10/EZ40)
  - AUDIO IN, phono jack (2) (ED60/ED70/ EZ60/EZ70)
  - Input level: 327 mVrms
  - Input impedance: more than 47 kilohms
- LINE-2 IN (ED40/ED60/ED70/EZ70)
  - VIDEO IN, phono jack (1)
  - Input signal: 1Vp-p, 75 ohms, unbalanced, sync negative
  - AUDIO IN (MONO), phono jack (2) (ED40)
  - AUDIO IN, phono jack (2) (ED60/ED70/ EZ70)
  - Input level: 327mVrms
  - Input impedane: more than 47 kilohms
- LINE-3 IN (SAT IN) (ED40/ED60/ED70/ EZ70AS)
  - VIDEO IN, phono jack (1)
  - Input signal: 1Vp-p, 75 ohms, unbalanced, sync negative
  - AUDIO IN (MONO), phono jack (2) (ED40)
  - AUDIO IN, phono jack (2) (ED60/ED70/ EZ70AS)
  - Input level: 327mVrms
  - Input impedane: more than 47 kilohms
- LINE OUT (ED10/ED40/EZ10/EZ40)
- LINE-1 OUT (ED60/ED70/EZ60/EZ70)
  - VIDEO OUT, phono jack (1)
  - Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
  - AUDIO OUT, phono jack (1) (ED10/EZ10/ EZ40)
  - AUDIO OUT (MONO), phono jack (2) (ED40)
  - AUDIO OUT, phono jack (2) (ED60/ED70/ EZ60/EZ70)
  - Standard output: 327 mVrms
  - Load impedance; 47 kilohms
  - Output impedance: less than 10 kilohms
- LINE-2 OUT (AUDIO) (ED60/ED70/EZ60/EZ70)
  - AUDIO OUT, phono jack (2)
  - Standard output: 327 mVrms
  - Load impedance; 47 kilohms
  - Output impedance: less than 10 kilohms
- SKY TV DECODER (EZ70NZ)
  - VIDEO IN, phono jack (1)
  - Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
  - VIDEO OUT, phono jack (1)
  - Output signal: 1 Vp-p, 75 ohms, unbalanced.

General

- Power requirements
  - 110 – 240 V AC, 50/60 Hz (ED10/ED40/ ED60/ED70)
  - 220-240 V AC, 50 Hz (EZ10/EZ40/EZ60/ EZ70)
- Power consumption
  - 18W (ED10/ED40/ED60/EZ10/EZ40)
  - 20W (ED70/EZ60/EZ70)
- Operating temperature
  - 5 ˚C to 40 ˚C
- Storage temperature
  - –20 ˚C to 60 ˚C
- Dimensions
  - Approx. 355 × 96 × 289 mm (w/h/d): (ED10/EZ10)
  - Approx. 430 × 100 × 295 mm (w/h/d): (ED40/ED60/ED70/EZ40/EZ60/EZ70) including projecting parts and controls
- Mass
  - Approx. 3.6 kg: (ED10/EZ10)
  - Approx. 4.2 kg: (ED40)
  - Approx. 4.5 kg: (ED60/ED70/EZ40/EZ60/ EZ70)

Supplied accessories

Remote commander (1)
R6 (size AA) batteries (2)
Aerial cable (1)
Plug adaptor (1) (ED10ME/ED10SG/ED40ME/ ED40SG/ED60ME/ED60SG)

Design and specifications are subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are “pinched” or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

- **Feature Difference**

SLV- **FEATURE**	**ED10**	**ED40**	**ED60**	**ED70**	**EZ10**	**EZ40**	**EZ60**	**EZ70 AS**	**EZ70 NZ**
HEAD/CH	2/2	4/4	4/6	4/6	2/2	4/4	4/6	4/6	4/6
NTSC (3.58) (REC/PB)	○	○	○	○	×	×	×	○	○
(4.43) (REC/PB)	○	○	○	○	×/○	×/○	×/○	○	○
ME-SECAM (REC/PB)	○	○	○	○	×	×	×	×	×
REC (NTSC) (SP/EP)	○	○	○	○	×	×	×	○	○
(PAL) (SP/LP)	○	○	○	○	○	○	○	○	○
PLAY (NTSC) (SP/LP/EP)	○	○	○	○	○	○	○	○	○
(PAL) (SP/LP)	○	○	○	○	○	○	○	○	○
RCA REAR LINE INPUT	○	○	○ (3pin Y.W.R)	○ (3pin Y.W.R)	○	○	○ (3pin Y.W.R)	○ (3pin Y.W.R)	○ (3pin Y.W.R)
RCA REAR LINE OUTPUT	○	○ (3pin Y.B.B)	○ (3pin Y.W.R)	○ (3pin Y.W.R)	○	○	○ (3pin Y.W.R)	○ (3pin Y.W.R)	○ (3pin Y.W.R)
ADDITIONAL REAR INPUT (SAT IN)	×	○ (3pin Y.B.B)	○ (3pin Y.W.R)	○ (3pin Y.W.R)	×	×	×	○ (3pin Y.W.R)	×
ADDITIONAL REAR OUTPUT (AUDIO OUT)	×	×	○	○	×	×	○	○	○
SKYDECODER REAR IN/OUT	×	×	×	×	×	×	×	×	○
RCA FRONT LINE INPUT	×	○ (3pin Y.B.B)	○ (3pin Y.W.R)	○ (3pin Y.W.R)	×	×	×	○ (3pin Y.W.R)	○ (3pin Y.W.R)
MODULATOR SYSTEM	G/K/I	G/K/I	G/K/I	G/K/I	G	G	G	G	G
CLICK SHUTTLE	×	×	×	○	×	×	×	○	○
REMOTE COMMANDER RMT-	V248C	V247	V247C	V247D	V245A	V245A	V245C	V245	V245

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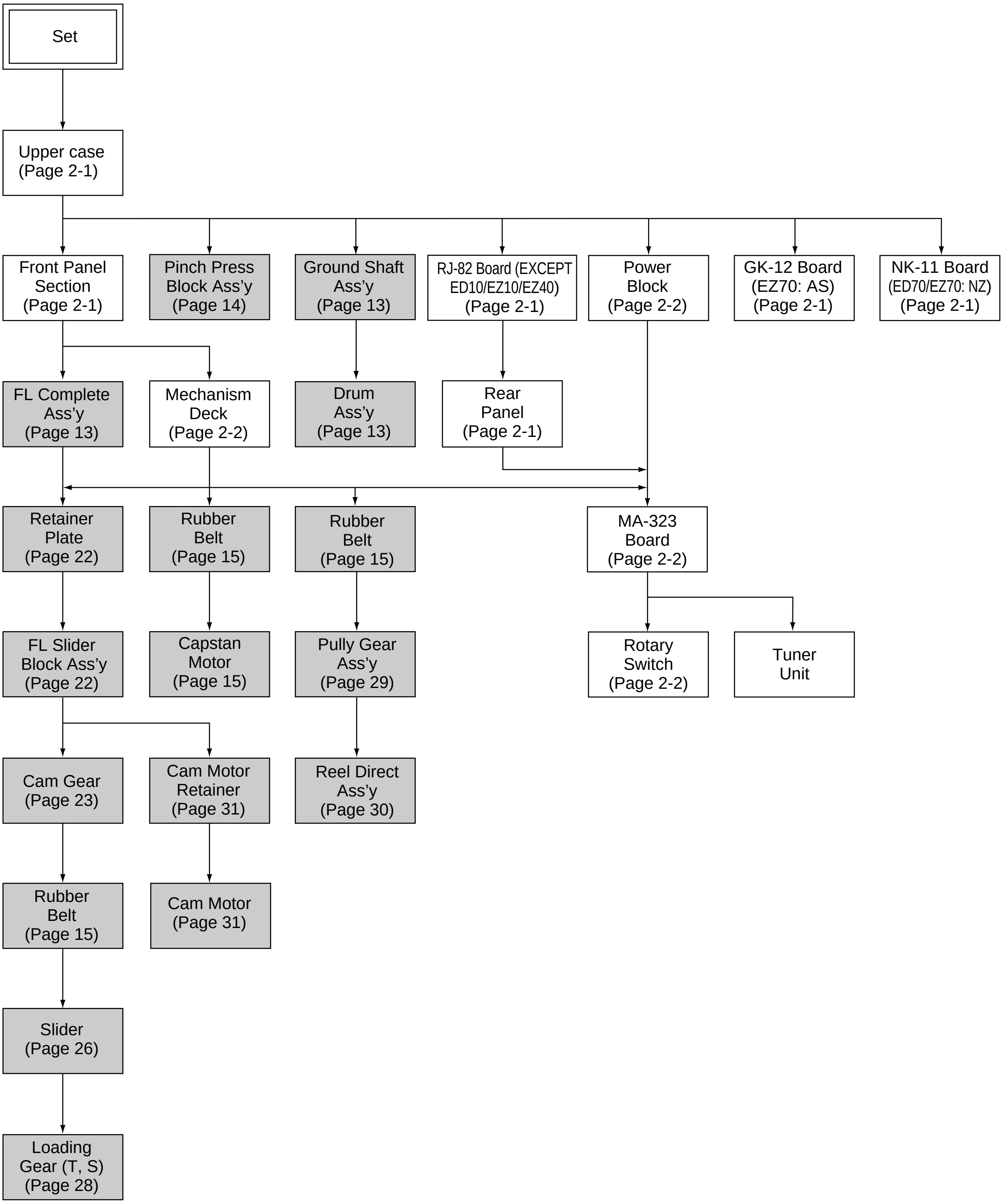
SERVICE NOTE

1. DISASSEMBLY

- This set can be disassembled in the order shown below.

Note: Pages in ☐ indicated pages in the SERVICE MANUAL.
Pages in ▨ indicated pages in the VHS MECHANICAL ADJUSTMENT MANUAL VI.


Set
Upper case (Page 2-1)
Front Panel Section (Page 2-1)
Pinch Press Block Ass'y (Page 14)
Ground Shaft Ass'y (Page 13)
RJ-82 Board (EXCEPT ED10/EZ10/EZ40) (Page 2-1)
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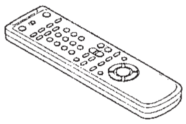
SECTION 1
GENERAL

This section is extracted from SLV-ED70MN instruction manual. (3-865-382-11)

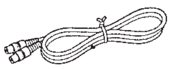
Step 1
Unpacking

Check that you have received the following items with the VCR:

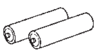
- Remote commander



- Aerial cable



- R6 (size AA) batteries

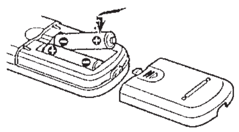


Step 2
Setting up the remote commander

Inserting the batteries

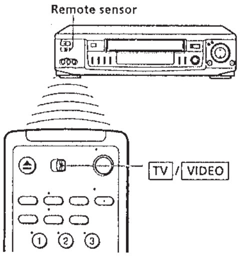
Insert two R6 (size AA) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.

Insert the negative (–) end first, then push in and down until the positive (+) end clicks into position.



Using the remote commander

You can use this remote commander to operate this VCR and a Sony TV. Buttons on the remote commander marked with a dot (•) can be used to operate your Sony TV. If the TV does not have the ▣ symbol near the remote sensor, this remote commander will not operate the TV.


Remote sensor
TV / VIDEO

To operate	Set TV/VIDEO to
the VCR	VIDEO and point at the remote sensor on the VCR
a Sony TV	TV and point at the remote sensor on the TV

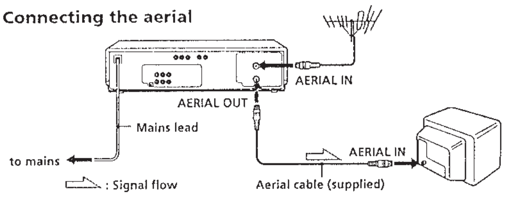
Notes

- The TV/VIDEO button selects an input source of the TV from either aerial in or line in. The button does not control this VCR.
- With normal use, the batteries should last about three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use different types of batteries.

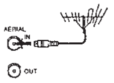
Step 3
Connecting the VCR

Connect the aerial to your VCR and TV as shown below to watch TV programmes and VCR pictures on your TV. In addition, if your TV has audio/video (A/V) input jacks, we recommend you connect the VCR to your TV using an audio/video cable to get a better picture and sound.

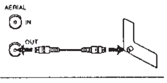
Connecting the aerial


AERIAL IN
AERIAL OUT
Mains lead
to mains
AERIAL IN
: Signal flow
Aerial cable (supplied)

1 Disconnect the aerial cable from your TV and connect it to AERIAL IN on the rear panel of the VCR.


AERIAL
IN
OUT

2 Connect AERIAL OUT of the VCR and the aerial input of your TV using the supplied aerial cable.


AERIAL
IN
OUT

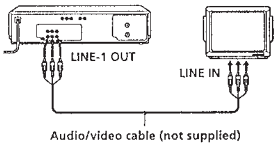
3 Connect the mains lead to the mains.

Additional connections

To a TV that has audio/video input jacks

This additional connection improves picture and sound quality. Connect the TV as shown on the right.

If you want to use the Trinitron TV Synchro Play function (see page 22), this connection is necessary. (If your TV has two or more inputs, connect the audio/video cable to the VIDEO IN 1 jacks.)

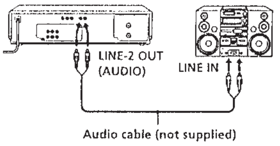

LINE-1 OUT
LINE IN
Audio/video cable (not supplied)

To a stereo system

You can improve sound quality by connecting a stereo system as shown on the right.

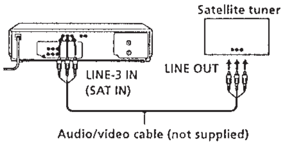
Note

- To listen to playback sounds in stereo, you must use either of the connections above.


LINE-2 OUT
(AUDIO)
LINE IN
Audio cable (not supplied)

To a satellite tuner

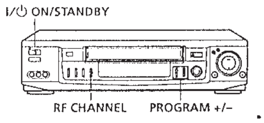
You can record programmes from other equipment such as a satellite tuner.

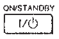

Satellite tuner
LINE-3 IN
(SAT IN)
LINE OUT
Audio/video cable (not supplied)

Step 4

Tuning your TV to the VCR

If you have connected your VCR to the TV using the audio/video cable, skip this step.



1 

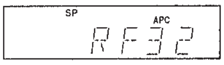
Press I/⏻ ON/STANDBY to turn on the VCR.

2

Press RF CHANNEL on the VCR.

The factory-preset RF channel appears in the display window.

The VCR signal is output through this channel to the TV.

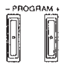


3 Turn on your TV and select a programme position for the VCR picture.

This channel will now be referred to as the video channel.

Some TV has the programme position, such as 0, that is reserved for a VCR. In this case, select that programme position for the VCR picture. Refer to the instruction manual of your TV for details.

4

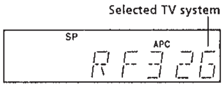


Press RF CHANNEL.

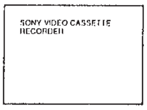
The TV system indicator appears in the display window.

Press PROGRAM +/– to select the correct TV system.

If your TV system is	Select
B/G	G
I	I
D/K	K



5 Tune the TV to the same channel as that shown in the display window so that the picture on the right appears on the TV screen.



SONY VIDEO CASSETTE RECORDER

Refer to your TV manual for tuning instructions.

If the picture does not appear clearly, see "To obtain a clear picture from the VCR" below.

6

Press RF CHANNEL.

You have now tuned your TV to the VCR. From now on, whenever you want to play a tape, set the TV to the video channel.

To obtain a clear picture from the VCR

If the picture does not appear clearly in step 5 above, go to step 6 to finish this procedure once. Then start from step 2. After pressing RF CHANNEL in step 2 to display the RF channel, press PROGRAM +/– so that another RF channel appears. Then tune the TV to the new RF channel until a clear picture appears.

If you cannot obtain a clear picture after performing this procedure, we recommend you connect the VCR and TV using the audio/video cable (see "To a TV that has audio/video input jacks" on page 6). If the same symptom persists, consult your nearest Sony dealer.

Note

- If you set the wrong TV system, you may have no sound or sound may be distorted (noisy sound).

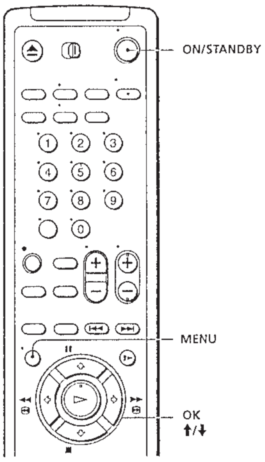
Step 5

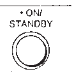
Selecting a language

You can change the on-screen display language from English to Arabic.

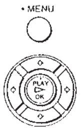
Before you start...

- Turn on your TV and set it to the video channel.

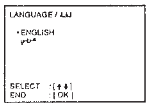


1 

Press ON/STANDBY to turn on the VCR.

2 

Press MENU, then press ↑/↓ to move the cursor (▶) to LANGUAGE and press OK.



LANGUAGE / لغة

• ENGLISH

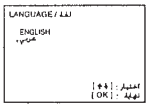
عربي

SELECT : [↑↓]

END : [OK]

3

Press ↑/↓ to select the desired language, then press OK.



LANGUAGE / لغة

ENGLISH

• عربي

اختيار : [↑↓]

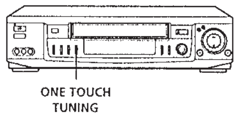
نهاية : [OK]

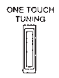
Step 6

Presetting channels

First, we recommend that you preset the receivable channels in your area using the one touch tuning or the AUTO PRESET in the TUNER PRESET menu. Then, if some channels could not be preset automatically, set them manually; if there are any unwanted channels among the preset ones, you can disable the channels.

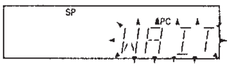
Presetting all receivable channels using one touch tuning



1 

Press ONE TOUCH TUNING on the VCR for more than 3 seconds.

The VCR starts the channel presetting.



The WAIT indicator goes off when all receivable channels are preset.

To check if the channels are preset correctly

Set the TV to the video channel and press PROGRAM +/– on the VCR. If the TV screen changes to a different programme each time you press PROGRAM +/–, the channels are preset correctly.

If the sound is distorted or noisy, the VCR is set to a TV system different from your area's. Select the TV system and preset channels using the TUNER PRESET menu on the next page.

Tip

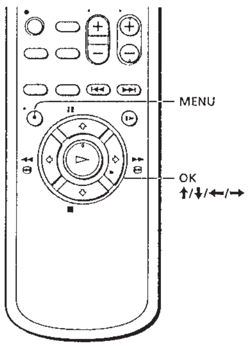
- To stop one touch tuning, press ONE TOUCH TUNING or ■ STOP on the VCR during the setting.

continued

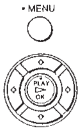
Presetting all receivable channels automatically

Before you start...

- Turn on the VCR and the TV.
- Set the TV to the video channel.



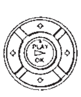
1



Press MENU, then press ↑/↓ to move the cursor (▶) to TUNER PRESET and press OK.

```
TUNER PRESET          PROG 1

 SYSTEM       •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
▶CHANNEL SET      1
 AFT            •ON     OFF
 FINE TUNING
SELECT   :[↑↓]
SET      :[←→]
```

2



Press ↑/↓/←/→ to move the cursor (▶) to SYSTEM, then select B/G, D/K or I, whichever is applicable in your area. If SYSTEM is set to the wrong position, the sound will be distorted or noisy.

```
TUNER PRESET          PROG 1

▶SYSTEM       •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
 CHANNEL SET      1
 AFT            •ON     OFF
 FINE TUNING
SELECT   :[↑↓]
SET      :[←→]
```

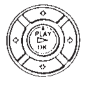
3

Press ↑/↓/←/→ to move the cursor (▶) to NORMAL/CATV, then select NORM.

To preset CATV channels, select CATV.

```
TUNER PRESET          PROG 1

 SYSTEM       •B/G  D/K  I
▶NORMAL / CATV  •NORM  CATV
 AUTO PRESET
 CHANNEL SET      1
 AFT            •ON     OFF
 FINE TUNING
SELECT   :[↑↓]
SET      :[←→]
```

4



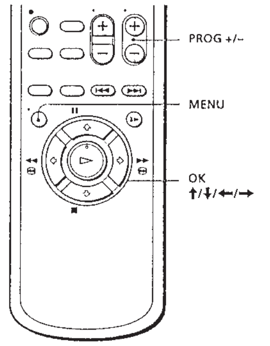
Press ↑/↓ to move the cursor (▶) to AUTO PRESET, then press OK.

All receivable channels are preset in numerical sequence. When no more receivable channels can be found, presetting stops and the picture from the lowest numbered channel is displayed on the TV screen.

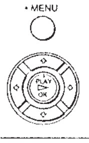
```
TUNER PRESET          PROG 1

 SYSTEM       •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
▶AUTO PRESET
 CHANNEL SET      1
 AFT            •ON     OFF
 FINE TUNING
PLEASE WAIT
```

continued

Presetting channels manually



1



Press MENU, then press ↑/↓ to move the cursor (▶) to TUNER PRESET and press OK.

```
TUNER PRESET          PROG10

 SYSTEM       •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
▶CHANNEL SET      21
 AFT            •ON     OFF
 FINE TUNING
SELECT   :[↑↓]
SET      :[←→]
```

2

Press ↑/↓/←/→ to move the cursor (▶) to NORMAL/CATV, then select NORM.

To preset CATV channels, select CATV.

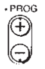
```
TUNER PRESET          PROG10

 SYSTEM       •B/G  D/K  I
▶NORMAL / CATV  •NORM  CATV
 AUTO PRESET
 CHANNEL SET      21
 AFT            •ON     OFF
 FINE TUNING
SELECT   :[↑↓]
SET      :[←→]
```

3

Press ↑/↓ to move the cursor (▶) to CHANNEL SET.

```
TUNER PRESET          PROG10

 SYSTEM       •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
▶CHANNEL SET      21
 AFT            •ON     OFF
 FINE TUNING
SELECT   :[↑↓]
SET      :[←→]
```

4

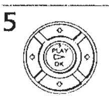


Press PROG +/– to select the programme position.

Selected programme position

```
TUNER PRESET          PROG14

 SYSTEM       •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
▶CHANNEL SET      21
 AFT            •ON     OFF
 FINE TUNING
SELECT   :[↑↓]
SET      :[←→]
```

5



Press → repeatedly until the channel you want is displayed.
Pressing ← goes back to the previous channels.

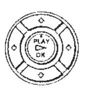
The channels are scanned in the following order:

```
TUNER PRESET          PROG14

 SYSTEM       •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
▶CHANNEL SET      35
 AFT            •ON     OFF
 FINE TUNING
SELECT   :[↑↓]
SET      :[←→]
```

Channel coverage	System B/G	System D/K	System I
VHF	E2–E12	R1–R12	SA4–SA13
UHF	E21–E69	R21–R69	B21–B69
CATV (TV distribution)	S1–S41, S01–S05	–	S1–S41, S01–S05

If you know the number of the channel you want, press the programme number buttons. For example, for channel 5, first press "0" and then press "5."

6



If the TV sound is distorted or noisy, press ↑/↓/←/→ to move the cursor (▶) to SYSTEM, then select B/G, D/K or I whichever is applicable in your area.

```
TUNER PRESET          PROG14

▶SYSTEM       •B/G  D/K  I
 NORMAL / CATV  •NORM  CATV
 AUTO PRESET
 CHANNEL SET      35
 AFT            •ON     OFF
 FINE TUNING
SELECT   :[↑↓]
SET      :[←→]
```

7

To allocate another channel to another programme position, repeat steps 4 and 5.

8

Press OK.

continued

Disabling unwanted programme positions

After tuning the TV channels, you can disable unused programme positions. The disabled positions will be skipped later when you press the PROG +/– buttons.

1 In step 5 on page 15, press programme number button "0" twice to display the number "0" beside CHANNEL SET.

2 Press OK.

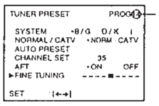
If the picture is not clear

Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. If, however, the picture is not clear, you may also use the manual tuning function.

1 Press PROG +/– to select the programme number for which you cannot obtain a clear picture.

2 Press MENU, then select TUNER PRESET and press OK.

3 Select FINE TUNING. The fine tuning meter appears.



```
TUNER PRESET            PROG 3

 SYSTEM        •B/G   D/K   I
 NORMAL / CATV   •NORM  CATV
 AUTO PRESET
 CHANNEL SET       35
 AFT             •ON     OFF
▶FINE TUNING     ----■----

SET         :[←→]
```

Selected programme position

4 Press ←/→ to get a clearer picture, then press OK.

Note that the AFT (Auto Fine Tuning) setting switches to OFF.

Note

- The menu disappears automatically if you do not proceed for more than a few minutes.

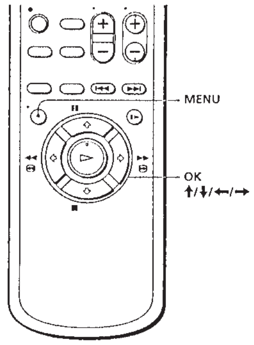
Step 7

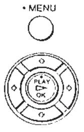
Setting the clock

You must set the time and date on the VCR to be able to use the timer recording features properly.

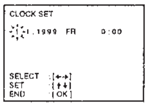
Before you start...

- Turn on the VCR and the TV.
- Set the TV to the video channel.



1 

Press MENU, then press ↑/↓ to move the cursor (▶) to CLOCK SET and press OK.

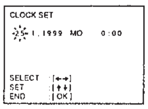


```
CLOCK SET
 1 . 1 . 1999  FR      0:00



SELECT   :[←→]
SET      :[↑↓]
END      :[OK]
```

2

Press ↑/↓ to set the date.

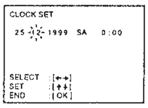
The day of the week is set automatically.



```
CLOCK SET
 25 . 1 . 1999  MO      0:00



SELECT   :[←→]
SET      :[↑↓]
END      :[OK]
```

3

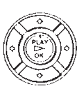
Press → to flash the month and set the month using ↑/↓.



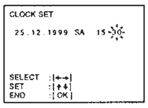
```
CLOCK SET
 25 . 12 . 1999  SA      0:00



SELECT   :[←→]
SET      :[↑↓]
END      :[OK]
```

continued

---

4 

Set the year, hour and minutes in sequence, using → to flash the item to be set, and ↑/↓ to select the digits.



```
CLOCK SET
 25 . 12 . 1999  SA   15:30



SELECT   :[←→]
SET      :[↑↓]
END      :[OK]
```

5

Press OK to start the clock.

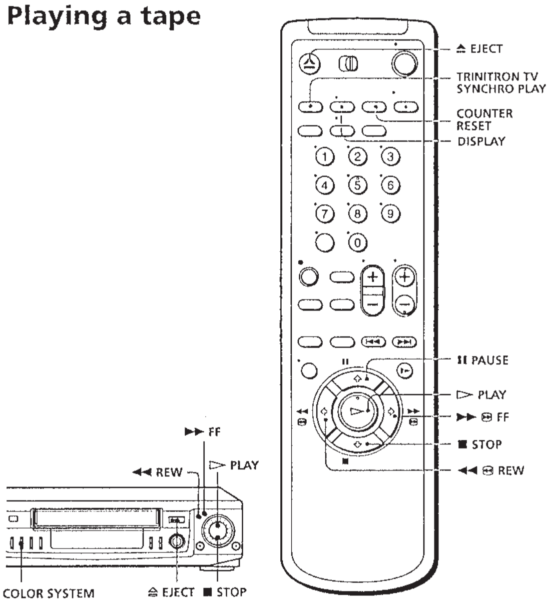
Tip

- To change the digits during setting, press ← to return to the item to be changed, and select the digits using ↑/↓.

Note

- The menu disappears automatically if you do not proceed for more than a few minutes.

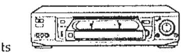
Playing a tape



1 Turn on your TV and set it to the video channel.

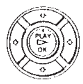
2 Insert a tape.

The VCR turns on and starts playing automatically if you insert a tape with its safety tab removed.



continued

Playing a tape (continued)

3 

Press ▷ PLAY.

When the tape reaches the end, it will rewind automatically.

Additional tasks

To	Press
Stop play	■ STOP
Pause play	❙❙ PAUSE
Resume play after pause	❙❙ PAUSE or ▷ PLAY
Fast-forward the tape	▶▶ ⊕ FF (▶▶ FF on the VCR) during stop
Rewind the tape	◀◀ ⊕ REW (◀◀ REW on the VCR) during stop
Eject the tape	⏏ EJECT

To set the colour system

If streaks appear during playback, press COLOR SYSTEM on the VCR to conform to the system that the tape was recorded in. (Normally, the colour system is correctly set whenever the tape is inserted.)

If your tape was recorded in	Press COLOR SYSTEM until the indication below appears in the display window.
PAL	PAL
MESECAM	PAL
NTSC	NTSC

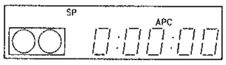
To play an NTSC-recorded tape

Set NTSC PB at the rear of the VCR according to the colour system of your TV.

If your TV is	Set NTSC PB to
PAL	ON PAL TV
NTSC 4.43	NTSC 4.43
NTSC 3.58	NTSC 3.58

To use the time counter

At the point on the tape that you want to find later, press COUNTER RESET. The counter in the display window resets to "0:00:00." Search for the point afterwards by referring to the counter.



To display the counter on the TV screen, press DISPLAY.

Notes
- The counter resets to "0:00:00" whenever a tape is reinserted.
- The counter stops counting when it comes to a portion with no recording.
- If a tape has portions recorded in both PAL and NTSC systems, the time counter reading will not be correct. This is due to the difference between the counting cycles of the two colour systems.
- Depending on your TV, the following may occur while playing an NTSC-recorded tape:
  - the picture is black and white
  - the picture shakes
  - no picture appears on the TV screen
  - black streaks appear horizontally on the TV screen
  - the colour density increases or decreases.
- Tapes recorded in the LP mode of NTSC system on other VCRs can be played back on this VCR, but the picture quality cannot be guaranteed.
- While setting the menu on the TV screen, you cannot use the ▷ PLAY, ❙❙ PAUSE, ▶▶ ⊕ FF, ◀◀ ⊕ REW or ■ STOP button. These buttons are used for menu operations.

continued

Playing a tape (continued)

Turning on the VCR and TV, and starting playback automatically (Trinitron TV Synchro Play)

You can only use this function if your TV is made by Sony (Trinitron TV).

How to connect to use this function

Connect the VCR and TV with the audio/video cable (see "To a TV that has audio/video input jacks" on page 6). Be sure to connect the audio/video cable to the VIDEO IN 1 jacks on the TV if the TV has two inputs or more. The TV must be placed where it will respond to the remote commander while you are pointing it at the VCR.

Operation

Make sure that the TV's main power is on.

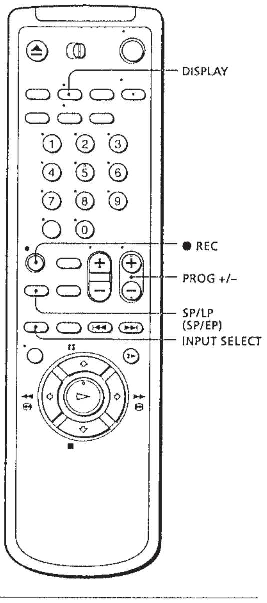
Press TRINITRON TV SYNCHRO PLAY and hold the remote commander in place for about two seconds.

The VCR and TV turn on, and the TV is set to VCR reception. If there is a tape in the VCR, playback starts automatically.

Notes
- If the Trinitron TV Synchro Play function does not work properly:
  - Wait a few moments, and press the button again.
  - Replace both of the batteries with new ones, and press the button again.

  Note that this function may not operate some Sony TVs because of the remote commander's signal limitations.
- Do not press TRINITRON TV SYNCHRO PLAY while playing back a video tape. If you do so, the TV's input source will momentarily switch to the TV's tuner.

Recording TV programmes

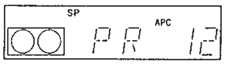


1 Turn on your TV and set it to the video channel.

2 Insert a tape with its safety tab in place.

3

Press PROG +/– to select the programme position you want to record.

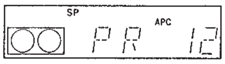


continued

4 SP/LP (SP/EP)

Press SP/LP (SP/EP) to select the tape speed, SP or LP.

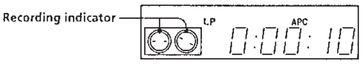
LP (Long Play) provides recording time twice as long as SP (Standard Play), however, SP produces better picture and audio quality.



5 ●REC

Press ● REC to start recording.

The recording indicator lights up red in the display window.

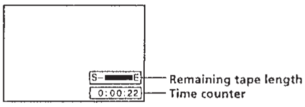


To stop recording

Press ■ STOP.

To check the remaining tape length

Press DISPLAY. The white bar indicates the approximate length of tape remaining.



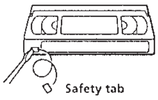
To watch another TV programme while recording

1 If the TV is connected to the VCR using an audio/video cable, set the TV to TV input. If the TV is connected to the VCR using only the aerial cable, skip this step.

2 Select another programme position on the TV.

To save a recording

To prevent accidental erasure, break off the safety tab as illustrated. To record on a tape again, cover the tab hole with adhesive tape.



To record NTSC colour system programmes

NTSC colour signals can be recorded on this VCR from the LINE-1 IN, LINE-2 IN and LINE-3 IN (SAT IN) jacks only.

To select the line input, press INPUT SELECT or PROG +/– so that "L1", "L2" or "L3" appears in the display window.

For tape speed, select SP or EP in step 4.

EP provides recording time three times as long as SP, however, SP produces better picture and sound quality.

When playing back, the VCR automatically detects the tape speed.

Tips

- To select a programme position, you can use the programme number buttons on the remote commander. For two-digit numbers, press the -/-- (ten's digit) button followed by the programme number buttons.
- You can select a video source from the LINE-1 IN, LINE-2 IN or LINE-3 IN (SAT IN) jacks. Press INPUT SELECT or PROG +/– to display "L1", "L2" or "L3" in the display window.
- The display appears on the TV screen indicating information about the tape, but the information will not be recorded on the tape.
- If you do not want to watch TV while recording, you can turn off the TV.

Notes

- The display does not appear during still (pause) mode or slow-motion playback.
- It may take up to one minute for the VCR to calculate and display the remaining tape length after you press DISPLAY.
- The remaining tape length does not appear while playing or recording in NTSC system.

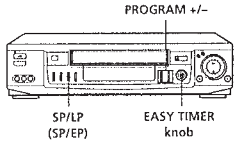
Recording TV programmes using the easy timer

You can record one programme on the same day (within 24 hours) with the easy timer. If the VCR clock has not been set, you can set the clock before setting the timer recording.

Setting the easy timer

Before you start...

- Insert a tape with its safety tab in place. Make sure the tape is longer than the recording time.
- If you want to see the setting on the TV screen, turn on the TV and set it to the video channel.

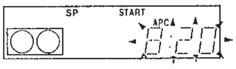


1 EASY TIMER

Press the EASY TIMER knob.

The START indicator appears in the display window.

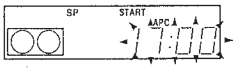
If the clock has not been set, "-:- -" appears. Go to step 2 in "Setting or changing the easy clock" on page 28.



2 EASY TIMER

Set the recording start time by turning the EASY TIMER knob clockwise or counterclockwise to increase or decrease the time by 15 minutes.

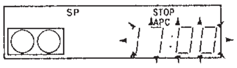
To increase or decrease the time by one minute, press PROGRAM +/–.



3 EASY TIMER

Press the EASY TIMER knob to confirm the start time setting.

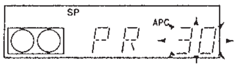
The STOP indicator appears.



4 EASY TIMER

Set the recording stop time in the same way as in step 2, then press the EASY TIMER knob.

A programme number flashes.

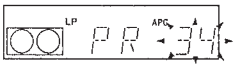


5 EASY TIMER

Turn the EASY TIMER knob clockwise or counterclockwise to select the programme you want to record.

To select the tape speed, press SP/LP (SP/EP).

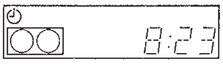
SP/LP (SP/EP)



6 EASY TIMER

Press the EASY TIMER knob to confirm the setting.

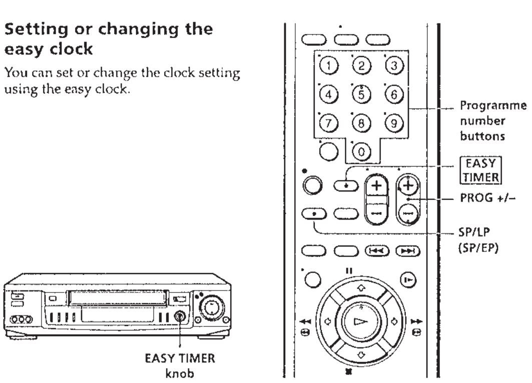
The ⏲ indicator appears in the display window and the VCR stands by for recording.



continued

Setting or changing the easy clock

You can set or change the clock setting using the easy clock.

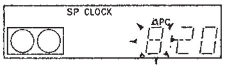


1

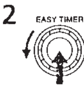
To change the clock setting, press the EASY TIMER knob on the VCR for more than three seconds.

The CLOCK indicator and the current clock setting appear in the display window.

If the clock has not been set yet, "–:– –" appears in the display window.

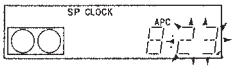


2



Set the current time using the EASY TIMER knob.

1 Turn the EASY TIMER knob clockwise or counterclockwise to enter the current hour.
2 Press the EASY TIMER knob to confirm the hour setting.
3 Turn the EASY TIMER knob to increase or decrease the minutes setting by a minute.

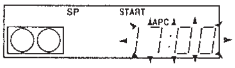


3

Press the EASY TIMER knob to confirm the clock setting.

The VCR enters the timer recording setting mode.

To continue the easy timer setting, go to step 2 in "Setting the easy timer" on page 26.



To quit the easy timer setting mode without changing any settings, press the EASY TIMER knob repeatedly until the ⏲ indicator appears in the display window.

To set the timer and clock setting using the remote commander

You can also use the remote commander to set the easy timer and easy clock. The operations on the VCR and the remote commander correspond as follows:

To	Do this on the VCR	Do this on the remote commander
Confirm the setting and go to the next setting	Press EASY TIMER knob	Press EASY TIMER
Change the time by 15 minutes (in START/STOP mode)	Turn EASY TIMER knob or hold PROGRAM +/– down	Hold PROG +/– down
Change the time by one minute (in START/STOP mode)	Press PROGRAM +/–	Press PROG +/–
Select the programme	Turn EASY TIMER knob or press PROGRAM +/– or INPUT SELECT	Press PROG +/– or INPUT SELECT
Change the hour/minute by one hour/minute (in CLOCK mode)	Turn EASY TIMER knob or press PROGRAM +/–	Press PROG +/–

You can also use the programme number buttons to set the clock, start and stop times, and the programme you want to record. Just press the programme number buttons to enter the hours and minutes. For example:

- To set the clock to "8:20", press 0, 8, EASY TIMER, 2, 0 and EASY TIMER in sequence.
- To set the start or stop time to "8:20", press 0, 8, 2, 0 and EASY TIMER in sequence.

If you make a mistake, re-enter the correct digits before pressing EASY TIMER.

continued

To stop recording

To stop the VCR while recording, press ■ STOP.

To check or change the timer setting

Press EASY TIMER knob repeatedly until the setting you want to check or change flashes. Then re-enter the new setting, if necessary. If you do not want to change any of the settings, press the EASY TIMER knob repeatedly until the ⏲ indicator appears in the display window.

You can also change the timer setting using the TIMER SET/CHECK menu. For details, see page 39.

To use the VCR after setting the timer

To use the VCR before a timer recording begins, just press ON/STANDBY. The ⏲ indicator turns off and the VCR switches on. Remember to press ON/STANDBY to reset the VCR after using the VCR.

You can also do the following tasks while the VCR is recording:

- Reset the counter.
- Display tape information on the TV screen.
- Check the timer settings.
- Watch another TV programme.

Tips

- To record from a source connected to LINE-1 IN, LINE-2 IN or LINE-3 IN (SAT IN) jacks, press INPUT SELECT or PROG +/– or turn the EASY TIMER knob to display "L1", "L2" or "L3" in the display window.
- To record NTSC signals, set the tape speed to SP or EP. To set to the EP mode, display "LP" in the display window.
- To cancel the easy timer setting, press CLEAR on the remote commander or press PROGRAM + and – on the VCR at the same time during any of the easy timer setting.

Notes

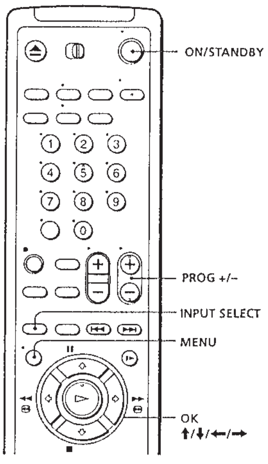
- You cannot set the easy timer if eight programmes have already been set.
- You can set the timer for only one programme using the easy timer. If you want to set the timer for other programmes, use the TIMER SET/CHECK menu. For details, see page 31.
- You cannot set the date using the easy timer. Set the date using the CLOCK SET menu if you want to set the timer with the menu. For details, see page 17.
- The ⏲ indicator flashes in the display window when you set the timer with no tape inserted.

Setting the timer manually

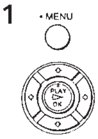
You can preset up to eight programmes at a time.

Before you start…

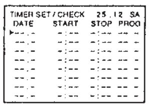
- Check that the VCR clock is set to the correct time.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and set it to the video channel.



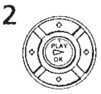
1



Press MENU and select TIMER SET/CHECK, then press OK.



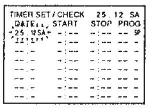
2



Set the date, start and stop times, programme position, and tape speed:

1 Press → to flash each item in turn.
2 Press ↑/↓ to set each item.

To correct a setting, press ← to return to that setting and reset.

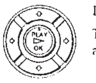


continued

Setting the timer manually (continued)

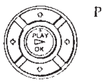
To record the same programme every day or the same day every week, press ↓ while the date is flashing. For details, see "Daily/weekly recording" below.

To record from a source connected to the LINE-1 IN, LINE-2 IN or LINE-3 IN (SAT IN) jacks; press INPUT SELECT or PROG +/– to display "L1", "L2" or "L3" in the "PROG" position.

3


Press → to confirm the setting.

The cursor (▶) appears at the beginning of the line. To enter another setting, move the cursor to the next line and repeat step 2.

4


Press OK.

5

Press ON/STANDBY to turn off the VCR.

The ⏲ indicator appears in the display window and the VCR stands by for recording.

To record from other equipment, leave the connected equipment switched on.

To stop recording

To stop the VCR while recording, press ■ STOP.

Daily/weekly recording

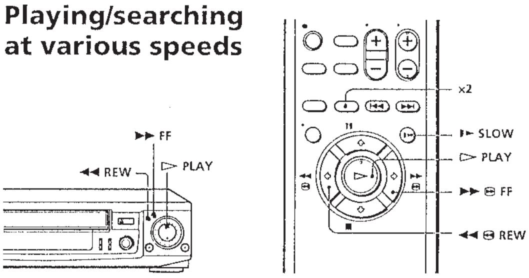
In step 2 above, press ↓ to select the recording pattern. Each time you press ↓, the indication changes as shown below. Press ↑ to change the indication in reverse order.

the current date → SU-SA (Sunday to Saturday) → MO-SA (Monday to Saturday) → MO-FR (Monday to Friday) → EVERY SA ..... → EVERY MO → EVERY SU → 1 month later → (dates count down) → the current date

Tips
- To set the programme position, you can also use the PROG +/– or programme number buttons.
- To set the tape speed, you can also use SP/LP (SP/EP).
- To record NTSC signals, set the tape speed to SP or EP. To set to the EP mode, display "LP" in the tape speed position.

Note
- The ⏲ indicator flashes in the display window when you press ON/STANDBY with no tape inserted.

Playing/searching at various speeds



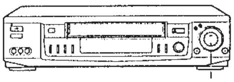
Playback options	Operation
View the picture during fast-forward or rewind	During fast-forward, hold ▶▶ ⊖ FF (▶▶ FF) down. During rewind, hold ◀◀ ⊖ REW (◀◀ REW) down.
Play at high speed	• During playback, press ▶▶ ⊖ FF or ◀◀ ⊖ REW on the remote commander. • During playback, hold ▶▶ ⊖ FF (▶▶ FF) or ◀◀ ⊖ REW (◀◀ REW) down. When you release the button, normal playback resumes.
Play at twice the normal speed	During playback or pause, press ×2.
Play in slow motion	During playback or pause, press I▶ SLOW.
Play frame by frame	During pause, press ▶▶ ⊖ FF or ◀◀ ⊖ REW on the remote commander. Hold the button down to play one frame each second.
Rewind and start play	During stop, press ▷ PLAY on the VCR while holding ◀◀ REW down on the VCR.

To resume normal playback

Press ▷ PLAY.

Playing/searching at various speeds (continued)

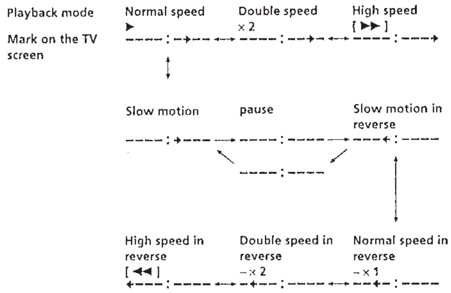
Using the CLICK SHUTTLE ring



CLICK SHUTTLE ring

With the CLICK SHUTTLE ring, you can operate a variety of playback options.

During playback or pause, turn the CLICK SHUTTLE ring clockwise or counterclockwise. Each change in the CLICK SHUTTLE ring position changes the playback mode, and the corresponding mark appears on the TV screen for a few seconds in the following way if the on-screen display function is on:



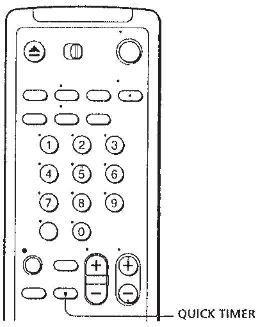
Tip
- Adjust the picture using TRACKING +/– on the VCR if:
  - – streaks appear while playing in slow motion.
  - – the picture shakes while pausing.

  To set tracking to the center position, press both buttons (+/–) at the same time.

Notes
- The playback sound is muted during these operations.
- In LP or EP mode, noise may appear or there may be no colour.
- The picture may have snow when playing at high speed in reverse.
- On screen symbols may shake while playing or searching at various speeds.

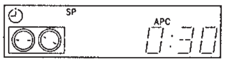
Recording TV programmes using the quick timer

After starting recording in the normal way, you can have the VCR stop recording automatically after a specified duration.



1 While recording, press QUICK TIMER once.

The ⏲ indicator appears in the display window.



2 Press QUICK TIMER repeatedly to set the duration.

Each press advances the time in increments of 30 minutes.

→ 0:00 → 0:30 → 1:00 ----→ 10:30 → 11:00 ┐

The duration decreases minute by minute to 0:00, then the VCR stops recording and turns off automatically.

To extend the duration

Press QUICK TIMER repeatedly to set to the new duration.

To stop recording

To stop the VCR while recording, press ■ STOP.

Using the quick timer during stop mode

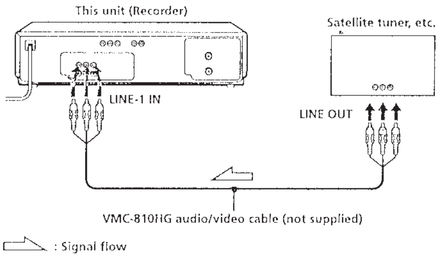
You can set the quick timer and start recording during stop mode by pressing QUICK TIMER. To set the channel, you can use the PROG +/– or INPUT SELECT buttons. Press QUICK TIMER repeatedly to set the recording duration. The recording will start automatically.

Synchronised recording

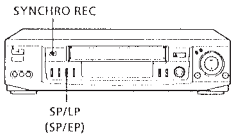
The Synchronised Recording feature enables you to record from the connected equipment such as a satellite tuner, a cable TV decoder or a TV that has a timer function. Once you set the timer on the other equipment, the unit will start recording the programme synchronised with the timer.

How to connect to use this function

Connect the other equipment to the LINE-1 IN jacks of this unit.



To prepare the Synchronised recording



1. Set the timer on the equipment to the time of the programme you want to record, then turn it off.
2. Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
3. Press SP/LP (SP/EP) to select the tape speed (SP or LP for the PAL colour system, and SP or EP for the NTSC colour system.)
4. Hold SYNCHRO REC down for more than two seconds.

   The SYNCHRO REC button lights up and the unit stands by for recording.

The unit automatically turns on and starts recording when it receives video/audio signals from the connected equipment.

To cancel the Synchronised recording

Press SYNCHRO REC so that the button's light turns off.

To stop recording

Press ■ STOP while recording.

The unit automatically stops recording when the tape reaches the end or when the other equipment stops transmitting the video/audio signals.

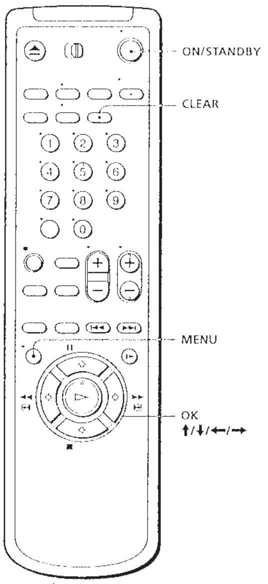
Notes

- Some TVs or other equipment automatically turn off in a certain time if you do not operate it after it turns on with the timer. In this case the Synchronised Recording also stops automatically.
- The Synchronised Recording starts and stops according to the signals from the connected equipment. Refer also to the instruction manual of the connected equipment for its timer function.
- If the settings for Timer Recording and Synchronised Recording overlap, the programme that starts first has priority and the second programme starts recording only after the first programme has finished.

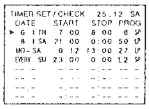
Checking/ changing/ cancelling timer settings

Before you start…

- Turn on your TV and set it to the video channel.



1. Press ON/STANDBY to turn on the VCR.
2. Press MENU, then select TIMER SET/CHECK:
   - If you want to change a setting, go on to the next step.
   - If you do not need to change the settings, press OK, then turn off the VCR to return to recording standby.



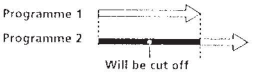
```
TIMER SET / CHECK    25.12  SA
 DATE       START    STOP  PROG
▶ 6  1 TH    7 00    8 00   8 SP
  8  1 SA   21 00    0:00  50 LP
 MO-SA       0 12   13:00  27 LP
 EVERY  SU  23 00    0 00  12 SP
 -- -       --:--   --:--  -- -
 -- -       --:--   --:--  -- -
 -- -       --:--   --:--  -- -
 -- -       --:--   --:--  -- -
```

3. Press ↑/↓ to select the setting you want to change or cancel:
   - To change the setting, press ←/→ to flash the item you want to change, and press ↑/↓ to re-set it. Then, press → repeatedly until the cursor (▶) appears at the beginning of the line.
   - To cancel the setting, press CLEAR.
4. Press OK.

   If any timer settings remain, turn off the VCR to return to recording standby.

When the timer settings overlap

The programme that starts first has priority and the second programme starts recording only after the first programme has finished. If the programmes start at the same time, the programme listed first in the menu has priority.



Recording stereo and bilingual programmes

In ZWEITON (German stereo) system

This VCR automatically receives and records stereo and bilingual programmes based on the ZWEITON system. When a stereo or bilingual programme is received, the STEREO indicator appears in the display window.

To select bilingual sound while recording

Press AUDIO MONITOR to select the sound you want.

To listen to	On-screen display	Display window
Main	MAIN	STEREO
Sub	SUB	STEREO
Main and sub	MAIN/SUB	STEREO

In NICAM system

This VCR receives and records stereo and bilingual programmes based on the NICAM system (the NICAM indicator appears). When a stereo or bilingual programme is received, the STEREO indicator appears in the display window.

To record a NICAM programme, HIFI AUDIO in the SET UP MENU should be set to NICAM (initial setting). To check the menu setting, see page 44 for details.

To select the sound while recording

Press AUDIO MONITOR to select the sound you want.

Stereo programme

To listen to	On-screen display	Display window
Stereo	STEREO	STEREO
Standard sound*	No indicator	No indicator

* Usually the mixed sound of left and right channels (monaural)

Bilingual programme

To listen to	On-screen display	Display window
Main	MAIN	STEREO
Sub	SUB	STEREO
Main and sub	MAIN/SUB	STEREO
Standard sound*	No indicator	No indicator

* Usually the main sound (monaural)

Selecting the sound while playing

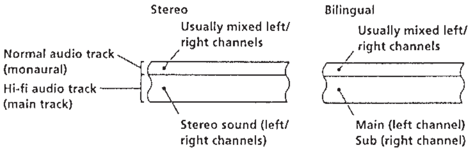
Press AUDIO MONITOR to select the sound you want.

To listen to	On-screen display	Display window
Stereo/main and sub (left and right channels)	STEREO	STEREO
Left channel/main	LCH	STEREO
Right channel/sub	RCH	STEREO
Standard sound*	No indicator	No indicator

* The mixed sound of left and right channels (monaural)

How sound is recorded on a video tape

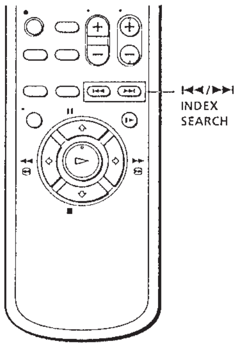
The VCR records sounds onto two separate tracks. Hi-fi audio is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.


Stereo
Bilingual
Usually mixed left/ right channels
Usually mixed left/ right channels
Normal audio track (monaural)
Hi-fi audio track (main track)
Stereo sound (left/ right channels)
Main (left channel)
Sub (right channel)

Notes

- To listen to playback sounds in stereo, you must use the AUDIO OUT connections.
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.
- If the AUDIO MONITOR button does not function, check that AUDIO MIX in the SET UP MENU is set to OFF.
- If HIFI AUDIO is set to STD, the standard sound will be recorded on both the hi-fi and normal audio tracks. Pressing AUDIO MONITOR will not change the sound.

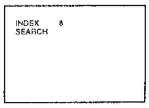
Searching using the index function



The VCR marks the tape with an index signal at the point where each recording begins. Use these signals as references to find a specific recording. The VCR can search up to 99 index signals ahead of or behind the current position.

1. Insert an indexed tape into the VCR.
2. Press ⏮/⏭ INDEX SEARCH repeatedly to specify how many index signals ahead or behind you want to search:
   - To search ahead, press ⏭ INDEX SEARCH.
   - To search backwards, press ⏮ INDEX SEARCH.

   The VCR starts searching and the index number on the TV screen counts down to zero. The playback starts from the point about five seconds ahead of the specified index mark.



To stop searching

Press ■ STOP.

Note

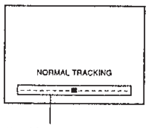
- No index signal will be added when recording starts from recording pause. However, an index signal will be marked if you change the channel during recording pause.

Adjusting the picture

Adjusting the tracking

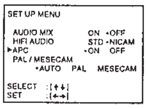
Although the VCR automatically adjusts the tracking when playing a tape (the ⊠ indicator flashes in the display window, then goes off), distortion may occur if the tape was recorded in poor condition. If so, manually adjust the tracking.

Press the TRACKING +/– buttons on the VCR to display the tracking meter. The distortion should disappear as you press one of the two buttons (the ⊠ indicator lights up). To resume automatic tracking adjustment, eject the tape and reinsert it.



About Adaptive Picture Control (APC)

Adaptive Picture Control (APC) automatically improves recording and playback quality by adjusting the VCR to the condition of the video heads and tape. To maintain better picture quality, we recommend that you set APC to ON in the SET UP MENU (with the APC indicator in the display window lit).



```
SET UP MENU

 AUDIO MIX          ON  •OFF
 HIFI AUDIO         STD •NICAM
▶APC               •ON   OFF
 PAL / MESECAM
      •AUTO   PAL   MESECAM

SELECT  :[↑↓]
SET     :[←→]
```

APC playback

The APC function automatically works on all types of tapes, including rental tapes and tapes that were not recorded with APC.

APC recording

Whenever you insert a tape and first start recording, the VCR adjusts to the tape using the APC function (the APC indicator flashes rapidly). This adjustment is retained until the tape is ejected.

To deactivate the APC

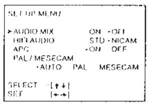
Press MENU and select SET UP MENU, then set APC to OFF. The APC indicator in the display window goes off.

Note

- There is a delay of a few seconds before the VCR actually starts recording while the VCR analyses the tape. To avoid the delay, first set the VCR to recording pause (the APC indicator flashes slowly) and press ● REC to have the VCR analyse the tape (the APC indicator flashes rapidly). After the APC indicator stops flashing, press ❚❚ PAUSE to start recording immediately. If you press ❚❚ PAUSE before the APC indicator stops flashing, the APC function is cancelled.

Changing menu options

1 Press MENU, then select SET UP MENU.



SET UP MENU

▸AUDIO MIX ON •OFF

HIFI AUDIO STD •NICAM

APC •ON OFF

PAL / MESECAM •AUTO PAL MESECAM

SELECT [↑↓]

SET [←→]

2 Press ↑/↓ to select the option to change, then press ←/→ to change the setting.

3 Press OK to return to the original screen.

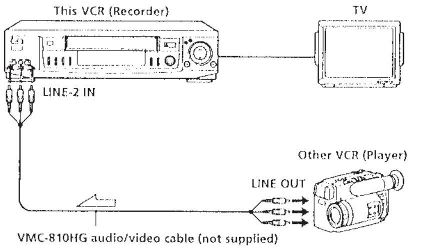
Menu choices

Initial settings are indicated in bold print.

Menu option	Set this option to
AUDIO MIX	ON to listen to the hi-fi and normal audio tracks at the same time. The AUDIO MONITOR button will not function. **OFF** to listen to hi-fi and normal audio tracks separately. Select the sound using the AUDIO MONITOR button.
HIFI AUDIO	STD to record standard sound on the hi-fi audio track. **NICAM** to record NICAM broadcasts on the hi-fi audio track. For details, see page 40.
APC	**ON** to switch on the APC (Adaptive Picture Control) function and improve picture quality. OFF to switch off APC.
PAL/MESECAM	**AUTO** to have the VCR automatically select the colour system for recording and playback. If the picture has no colour or unusual colours, set to PAL or MESECAM according to your local colour system.

Connecting to a VCR or stereo system

How to connect to record on this VCR



⇨ : Signal flow

How to connect to a stereo system

Connect LINE-2 IN AUDIO on this VCR to the audio output jacks on the stereo system, using the RK-C510KS audio cable (not supplied).

Notes

- Make sure you connect the plugs to jacks of the same colour.
- If you connected this VCR to both the LINE IN and LINE OUT jacks of the other VCR, select the input correctly to prevent a humming noise.

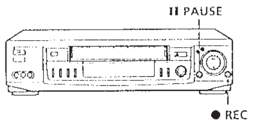
Tips

- If the other VCR is a monaural type and connected to this VCR's LINE-2 IN jacks, connect the audio plug to the AUDIO L (white) jack. The sound is recorded on both right and left channels. When connecting to the AUDIO R (red) jack, the sound is recorded only on the right channel.
- You can also use the LINE-1 IN or LINE-3 IN (SAT IN) jacks instead. If the other VCR is a monaural type, the sound is recorded only on the channel whose jack is connected to the audio plug. To record on both right and left channels, connect the audio plugs to the AUDIO R/L jacks using a VMC-910HG audio/video cable (not supplied).

Basic editing
(when recording on this VCR)

Before you start editing

- Turn on your TV and set it to the video channel.
- Press INPUT SELECT or PROG +/– to display "L1", "L2" or "L3" in the display window.
- Press SP/LP (SP/EP) to select the tape speed (SP or LP for the PAL system, and SP or EP for the NTSC system).



1 Insert a source tape with its safety tab removed into the other (playback) VCR. Search for the point to start playback and set it to playback pause.

2 Insert a tape with its safety tab in place into this (recording) VCR. Search for the point to start recording and press **II** PAUSE.

3 Press ● REC on this VCR and set it to recording pause.

4 To start editing, press the **II** PAUSE buttons on both VCRs at the same time.

To stop editing

Press the ■ STOP buttons on both VCRs.

Tips

- To edit more precisely, press the **II** PAUSE buttons on the VCRs to release pause.
- To cut out unwanted scenes while editing, press **II** PAUSE on this VCR when an unwanted scene begins. When it ends, press **II** PAUSE again to resume recording.

Note

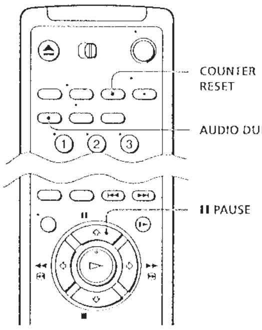
- If you start recording following the procedure above, the VCR will not start recording with the APC function. To record a tape with the APC function, press ● REC again during recording pause in step 3 so that the VCR analyses the tape. Then when you start recording in step 4, press **II** PAUSE after the APC indicator stops flashing. If you press **II** PAUSE before the APC indicator stops flashing, the APC function is cancelled.

Audio dubbing

This feature lets you record over the normal audio track. The monaural sound previously recorded is placed while the original hi-fi sound remains unchanged. Use this feature to add commentary to a tape that you have recorded with a camcorder.

Before you start editing

- Turn on your TV and set it to the video channel.
- Press INPUT SELECT or PROG +/– to display "L1" or "L2" or "L3" in the display window.



1 Insert a source tape into the stereo system (or the playback VCR). Search for the point to start playback and set it to playback pause.

2 Insert a prerecorded tape into this (recording) VCR. Search for the end of the section to be replaced and press **II** PAUSE. Make sure that the tape has its safety tab in place.

3 Press COUNTER RESET on this remote commander to reset the counter to "0:00:00."

4 Rewind the prerecorded tape to the beginning of the section to be replaced.

The VCR pauses.

5 Press AUDIO DUB.

The ⊖ indicator appears in the display window.

6 To start editing, press the **II** PAUSE buttons on this VCR and the stereo system (or other VCR) at the same time.

When the counter reaches "0:00:00" audio dubbing stops automatically.

To stop while editing

Press the ■ STOP buttons on this VCR and the stereo system (or other VCR).

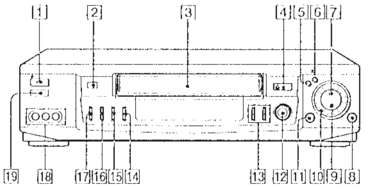
To listen to both the hi-fi and normal audio

Set AUDIO MIX to ON in the SET UP MENU (page 44). Use this feature to listen to dubbed audio over the original hi-fi audio. When AUDIO MIX is set to ON, the AUDIO MONITOR button does not function. Remember to reset AUDIO MIX to OFF after playing the tape.

Index to parts and controls

Refer to the pages indicated in parentheses ( ) for details.

Front panel



1 I/⏻ ON/STANDBY switch/indicator (8)

2 SYNCHRO REC button (36)

3 Tape compartment

4 ⏏ EJECT button (20)

5 ◀◀ REW (rewind) button (20, 33)

6 ▶▶ FF (fast-forward) button (20, 33)

7 ▷ PLAY button (20)

8 ● REC (record) button (24)

9 ■ STOP button (20)

10 CLICK SHUTTLE ring (34)

11 ❚❚ PAUSE button (20)

12 EASY TIMER knob (26)

13 PROGRAM/TRACKING +/– buttons (8, 43)

14 ONE TOUCH TUNING/RF (Radio Frequency) CHANNEL button (8, 11)

15 SP (Standard Play)/LP (Long Play)/EP (Extra Play) button (24)

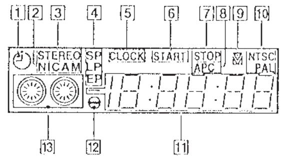
16 COLOR SYSTEM button (20)

17 INPUT SELECT button (25)

18 LINE-2 IN VIDEO/AUDIO L/R jacks (45)

19 Remote sensor (5)

Display window



1 Timer indicator (27)

2 NICAM indicator (40)

3 STEREO indicator (40)

4 Tape speed indicator (24)

5 CLOCK indicator (28)

6 START indicator (26)

7 STOP indicator (26)

8 APC (Adaptive Picture Control) indicator (43)

9 Tracking indicator (43)

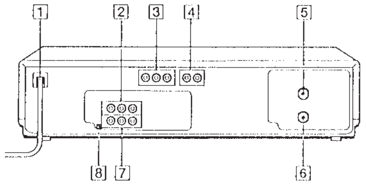
10 Colour system indicator (20)

11 Time counter/clock/line/programme/TV system indicator (21, 23, 27, 35)

12 Audio dubbing indicator (47)

13 Tape/recording indicator (24)

Rear panel



1 Mains lead (6)

2 LINE-1 IN AUDIO R/L/VIDEO jacks (40)

3 LINE-3 IN (SAT IN) AUDIO R/L/VIDEO jacks (7)

4 LINE-2 OUT (AUDIO) AUDIO R/L jacks (7)

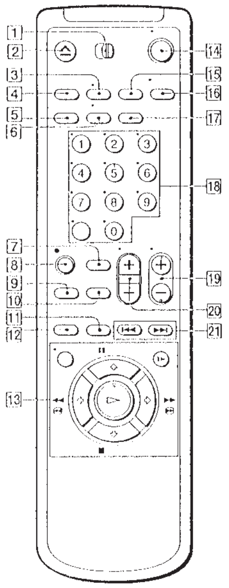
5 AERIAL IN connector (6)

6 AERIAL OUT connector (6)

7 LINE-1 OUT AUDIO R/L/VIDEO jacks (6)

8 NTSC PB (playback) switch (20)

Remote commander



1 TV / VIDEO remote control switch (5)

2 ⏏ EJECT button (20)

3 DISPLAY button (24)

4 TRINITRON TV SYNCHRO PLAY button (22)

5 AUDIO DUB (dubbing) button (47)

6 TV/VIDEO button *(for TV)* (5)

7 EASY TIMER button (29)

8 ● REC button (24)

9 SP (Standard Play)/LP (Long Play)/EP (Extra Play) button (24)

10 QUICK TIMER button (35)

11 ×2 button (33)

12 INPUT SELECT button (25, 32)

13 Tape/menu operation buttons

MENU button (10, 44)
❚❚ PAUSE/↑ button (20)
■ STOP/↓ button (20)
◀◀ ⊖ REW (rewind)/← button (20, 33)
▶▶ ⊕ FF (fast-forward)/→ button (20, 33)
▷ PLAY/OK button (20)
❚▶ SLOW button (33)

14 ON/STANDBY button (32)

15 COUNTER RESET buttons (21)

16 AUDIO MONITOR button (40)

17 CLEAR button (39)

18 Programme number /-/-- (ten's digit) buttons (29)

19 PROG (programme) +/– buttons (23)

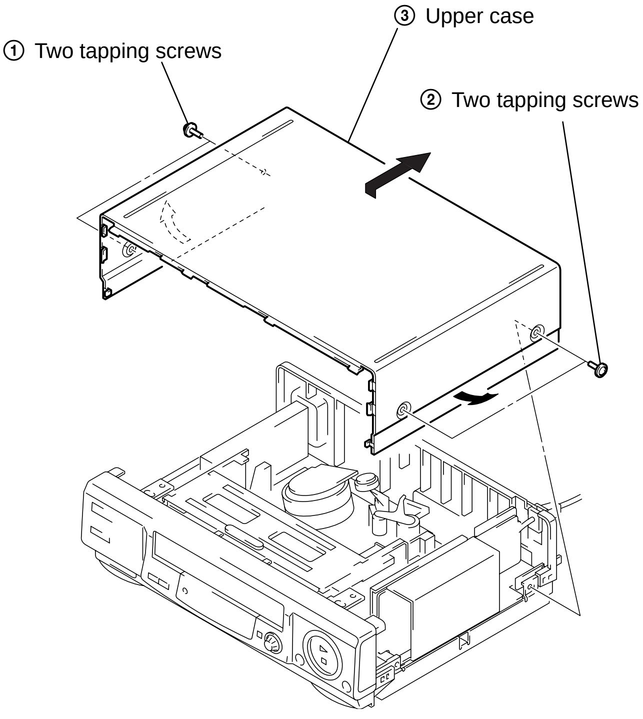
20 VOL (volume) +/– buttons *(for TV)*

21 ⏮/⏭ INDEX SEARCH buttons (42)

SECTION 2
DISASSEMBLY

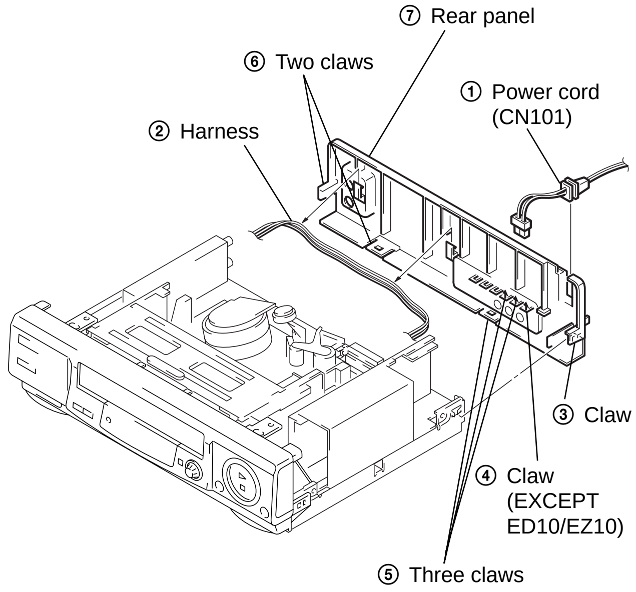
Note: Follow the disassembly procedure in the numerical order given.

2-1. UPPER CASE REMOVAL



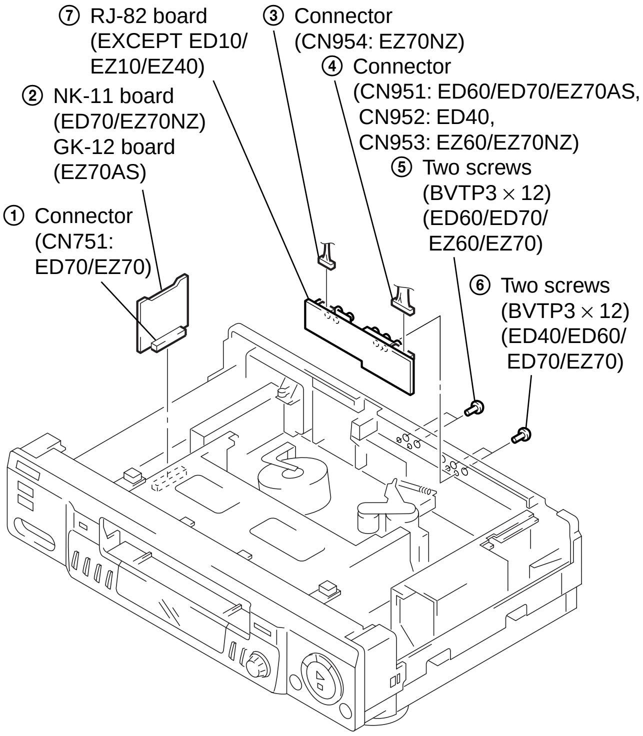
③ Upper case
① Two tapping screws
② Two tapping screws

2-3. REAR PANEL REMOVAL



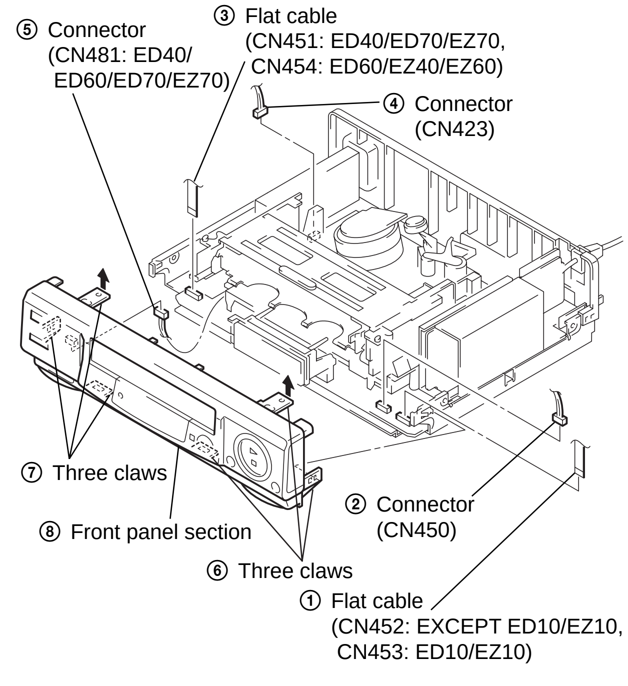
⑦ Rear panel
⑥ Two claws
① Power cord (CN101)
② Harness
③ Claw
④ Claw (EXCEPT ED10/EZ10)
⑤ Three claws

2-2. GK-12, NK-11, RJ-82 BOARD REMOVAL



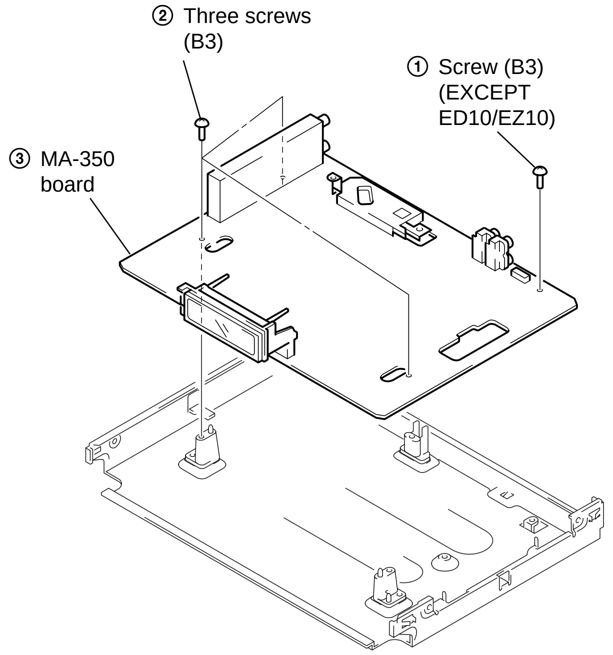
⑦ RJ-82 board (EXCEPT ED10/ EZ10/EZ40)
③ Connector (CN954: EZ70NZ)
④ Connector (CN951: ED60/ED70/EZ70AS, CN952: ED40, CN953: EZ60/EZ70NZ)
② NK-11 board (ED70/EZ70NZ) GK-12 board (EZ70AS)
⑤ Two screws (BVTP3 × 12) (ED60/ED70/ EZ60/EZ70)
① Connector (CN751: ED70/EZ70)
⑥ Two screws (BVTP3 × 12) (ED40/ED60/ ED70/EZ70)

2-4. FRONT PANEL SECTION REMOVAL

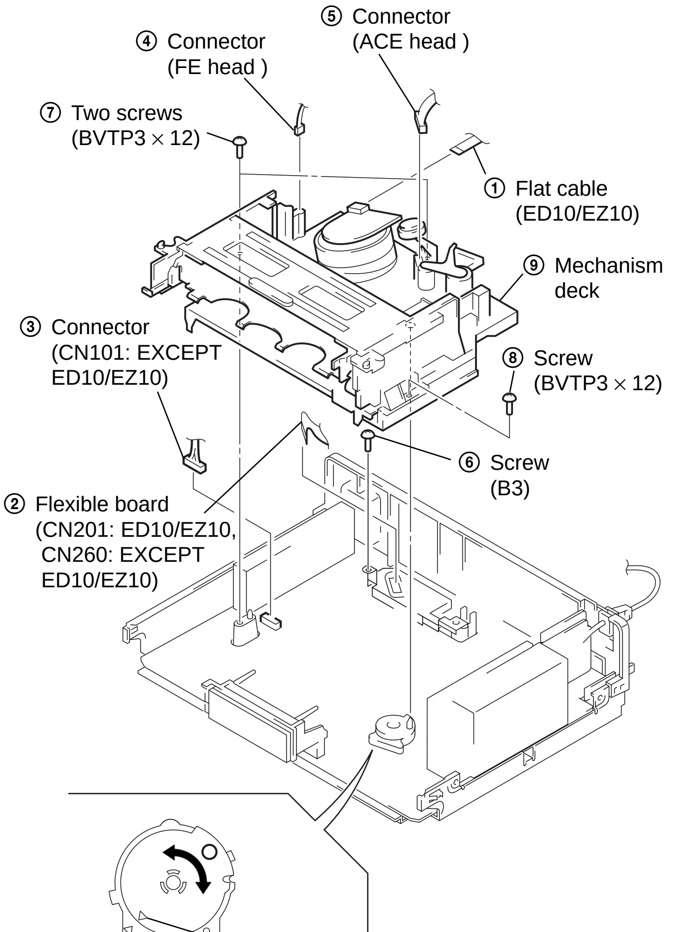


③ Flat cable (CN451: ED40/ED70/EZ70, CN454: ED60/EZ40/EZ60)
⑤ Connector (CN481: ED40/ ED60/ED70/EZ70)
④ Connector (CN423)
⑦ Three claws
⑧ Front panel section
② Connector (CN450)
⑥ Three claws
① Flat cable (CN452: EXCEPT ED10/EZ10, CN453: ED10/EZ10)

2-5. POWER BLOCK REMOVAL

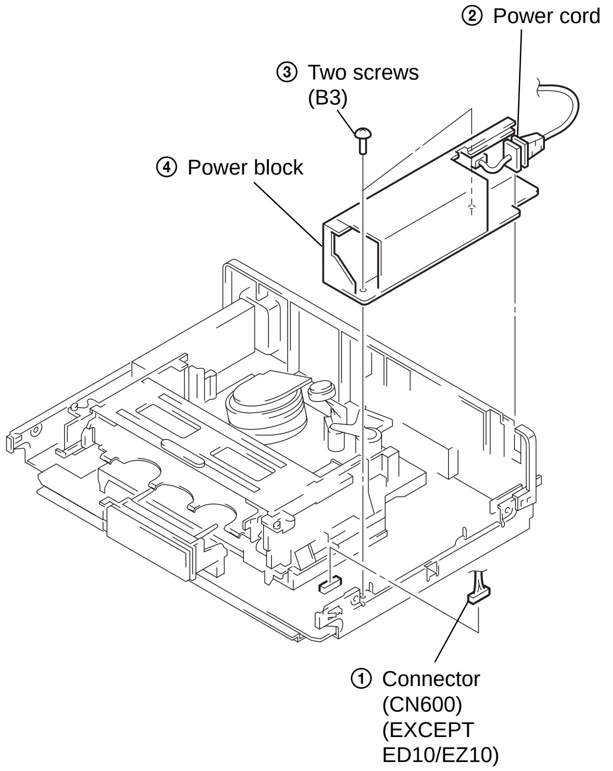

② Three screws (B3)
① Screw (B3) (EXCEPT ED10/EZ10)
③ MA-350 board

2-6. MECHASISM DECK REMOVAL

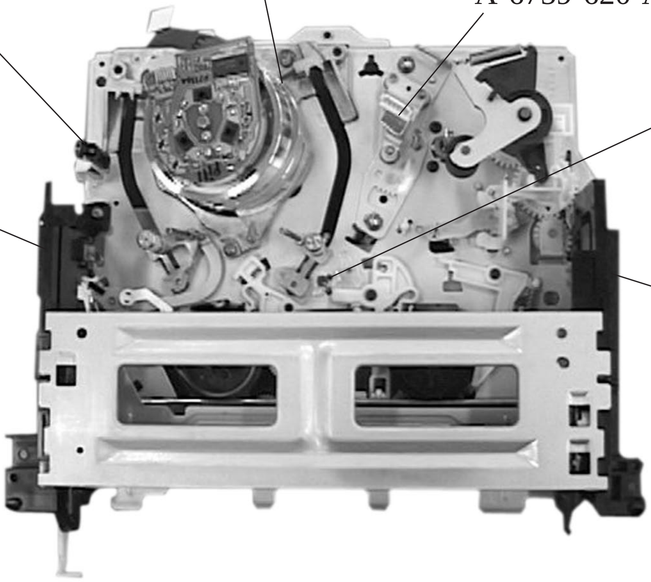

⑤ Connector (ACE head)
④ Connector (FE head)
⑦ Two screws (BVTP3 × 12)
① Flat cable (ED10/EZ10)
⑨ Mechanism deck
③ Connector (CN101: EXCEPT ED10/EZ10)
⑧ Screw (BVTP3 × 12)
⑥ Screw (B3)
② Flexible board (CN201: ED10/EZ10, CN260: EXCEPT ED10/EZ10)
3

Note: When mounting the mechanism deck, first align △ mark on the rotary switch.

2-7. MA-350 BOARD REMOVAL


② Power cord
③ Two screws (B3)
④ Power block
① Connector (CN600) (EXCEPT ED10/EZ10)

2-8. INTERNAL VIEWS



Drum assembly (M901) (DZH-89A-R)
1-759-453-11 (ED10/EZ10)
Drum assembly (M901) (DZH-74E/Z-RP)
8-839-037-04 (ED40/EZ40)
Drum assembly (M901) (DZH-95A/Z-RP)
8-839-045-02 (ED60/ED70/EZ60/EZ70)

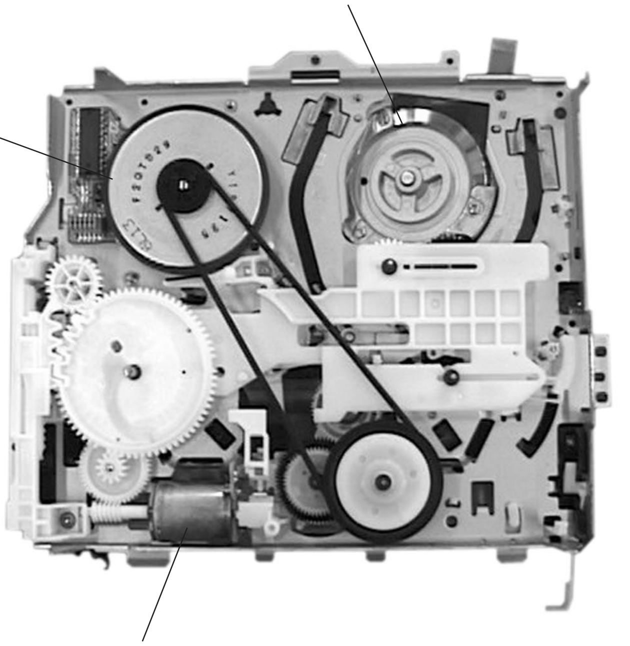
ACE head assembly
A-6759-620-A

FE head
1-500-144-11

D102
Tape top/end LED
8-719-048-26

Q100
Tape top sensor
8-729-043-84

Q101
Tape end sensor
8-729-043-84



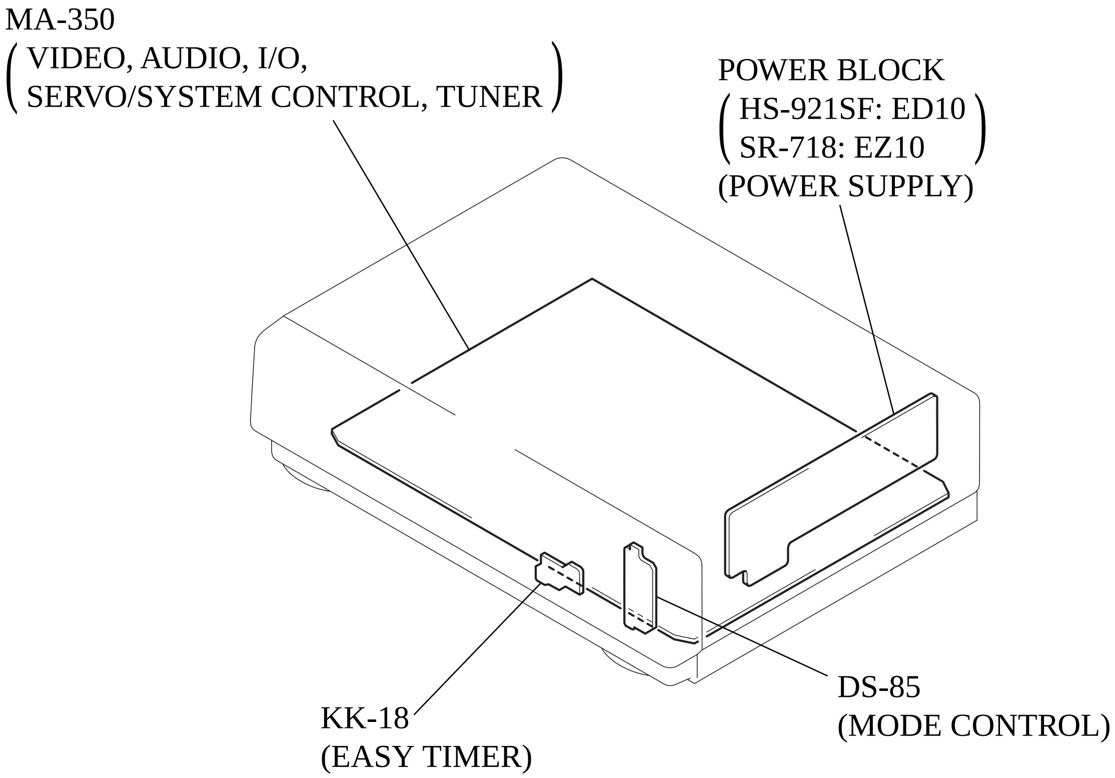
Drum assembly (M901) (DZH-89A-R)
1-759-453-11 (ED10/EZ10)
Drum assembly (M901) (DZH-74E/Z-RP)
8-839-037-04 (ED40/EZ40)
Drum assembly (M901) (DZH-95A/Z-RP)
8-839-045-02 (ED60/ED70/EZ60/EZ70)

Capstan motor
1-698-971-11

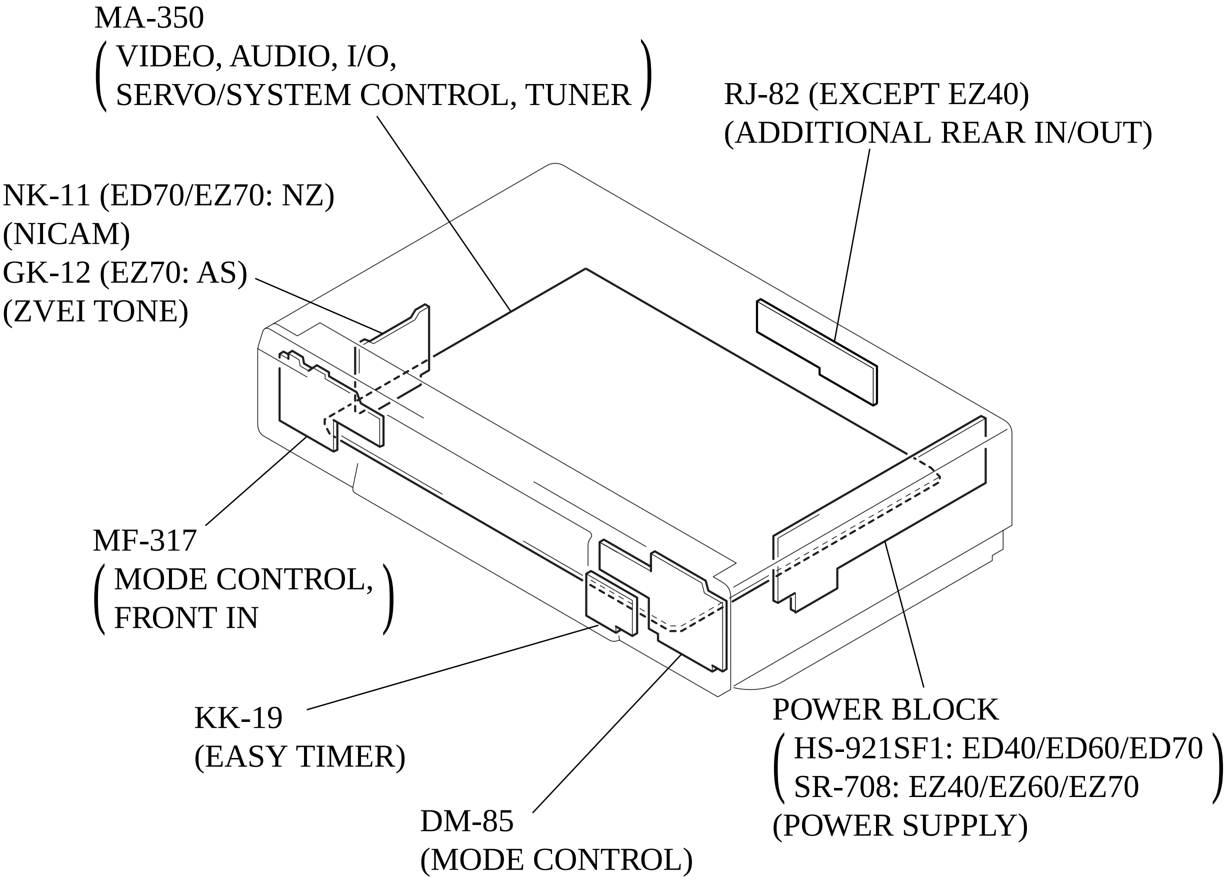
Cam motor assembly
X-3947-577-1

2-9. CIRCUIT BOARDS LOCATION

ED10/EZ10

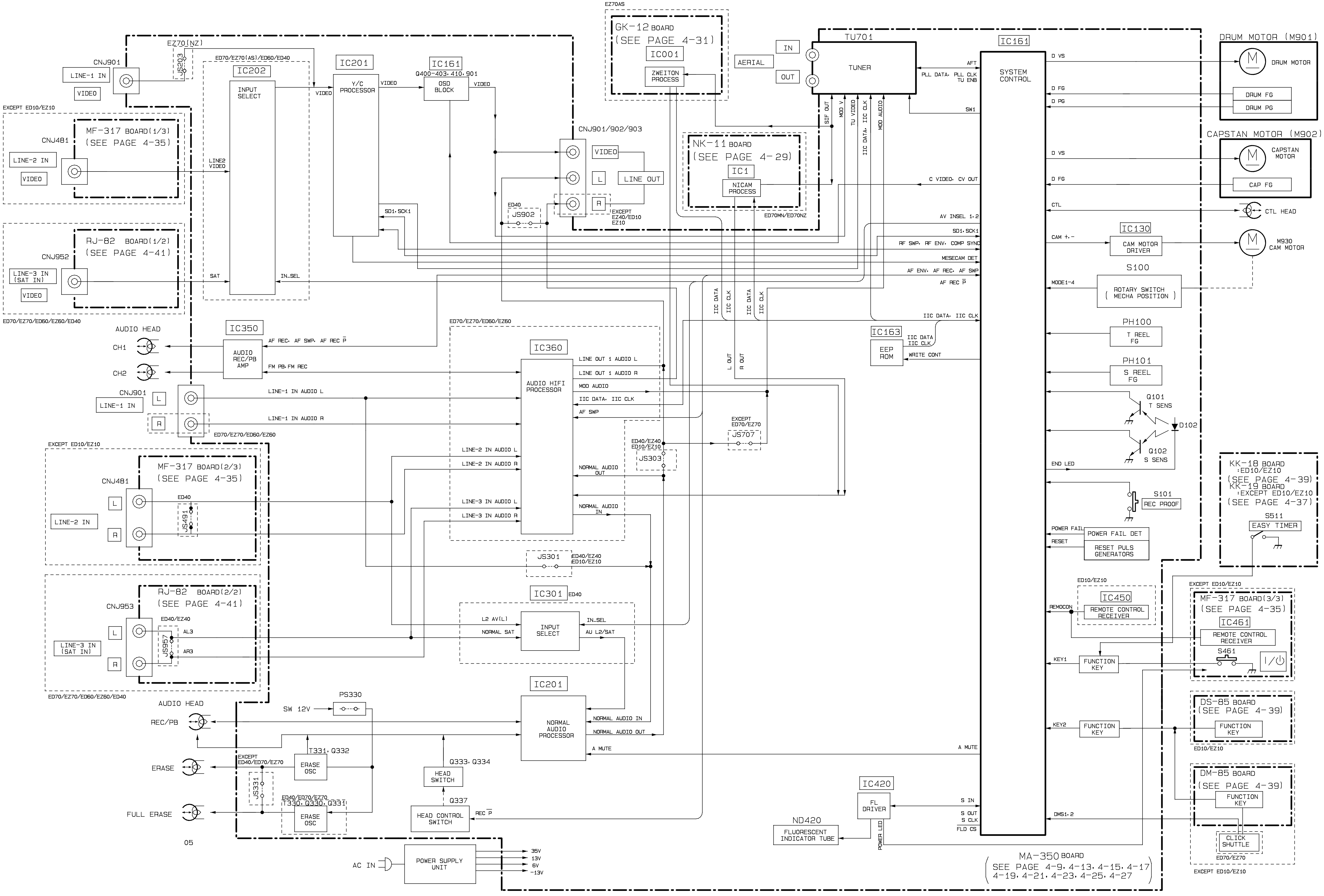

MA-350
(VIDEO, AUDIO, I/O,
SERVO/SYSTEM CONTROL, TUNER)
POWER BLOCK
(HS-921SF: ED10
SR-718: EZ10)
(POWER SUPPLY)
KK-18
(EASY TIMER)
DS-85
(MODE CONTROL)

EXCEPT ED10/EZ10

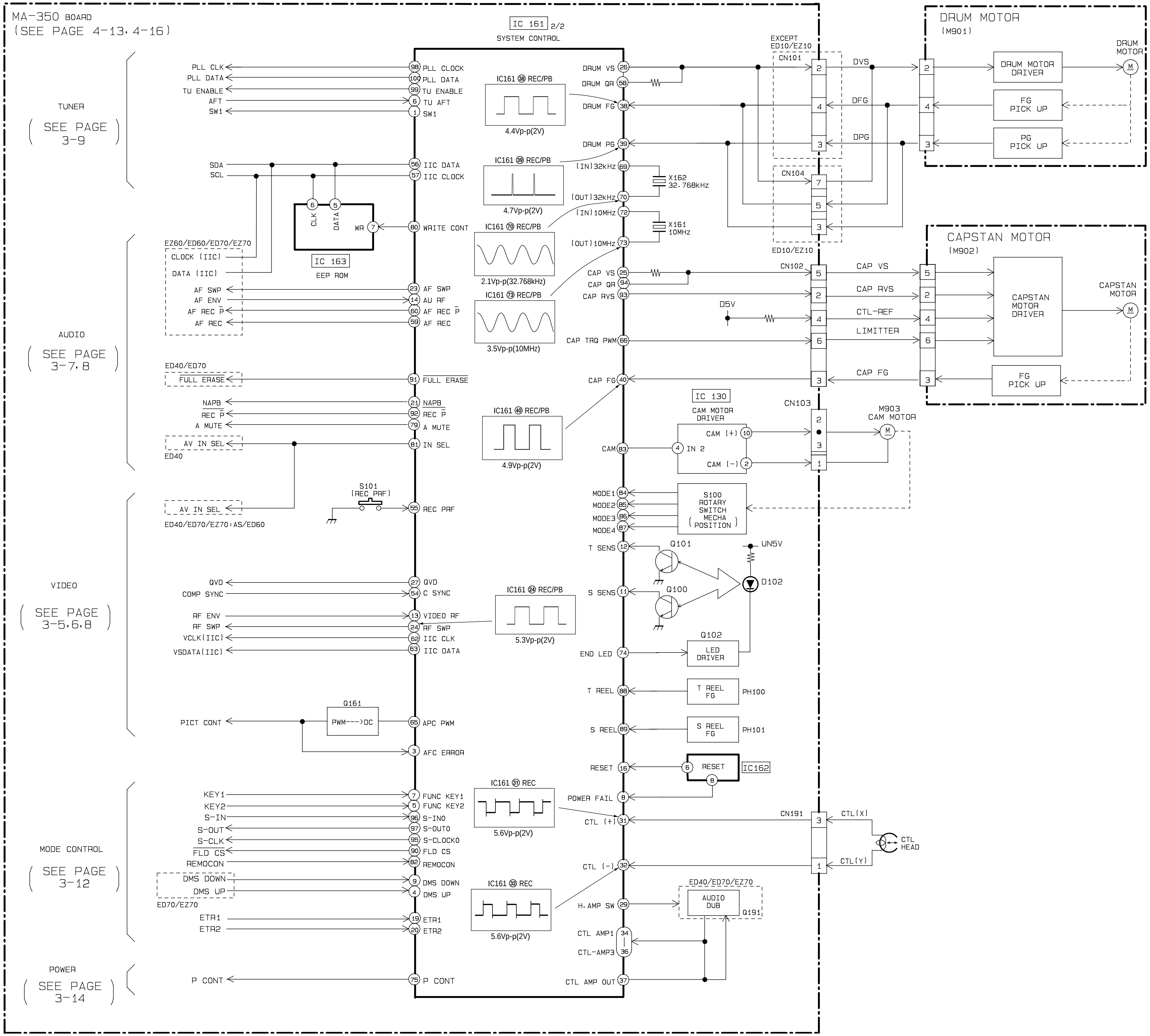

MA-350
(VIDEO, AUDIO, I/O,
SERVO/SYSTEM CONTROL, TUNER)
RJ-82 (EXCEPT EZ40)
(ADDITIONAL REAR IN/OUT)
NK-11 (ED70/EZ70: NZ)
(NICAM)
GK-12 (EZ70: AS)
(ZVEI TONE)
MF-317
(MODE CONTROL,
FRONT IN)
KK-19
(EASY TIMER)
DM-85
(MODE CONTROL)
POWER BLOCK
(HS-921SF1: ED40/ED60/ED70
SR-708: EZ40/EZ60/EZ70)
(POWER SUPPLY)

SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM

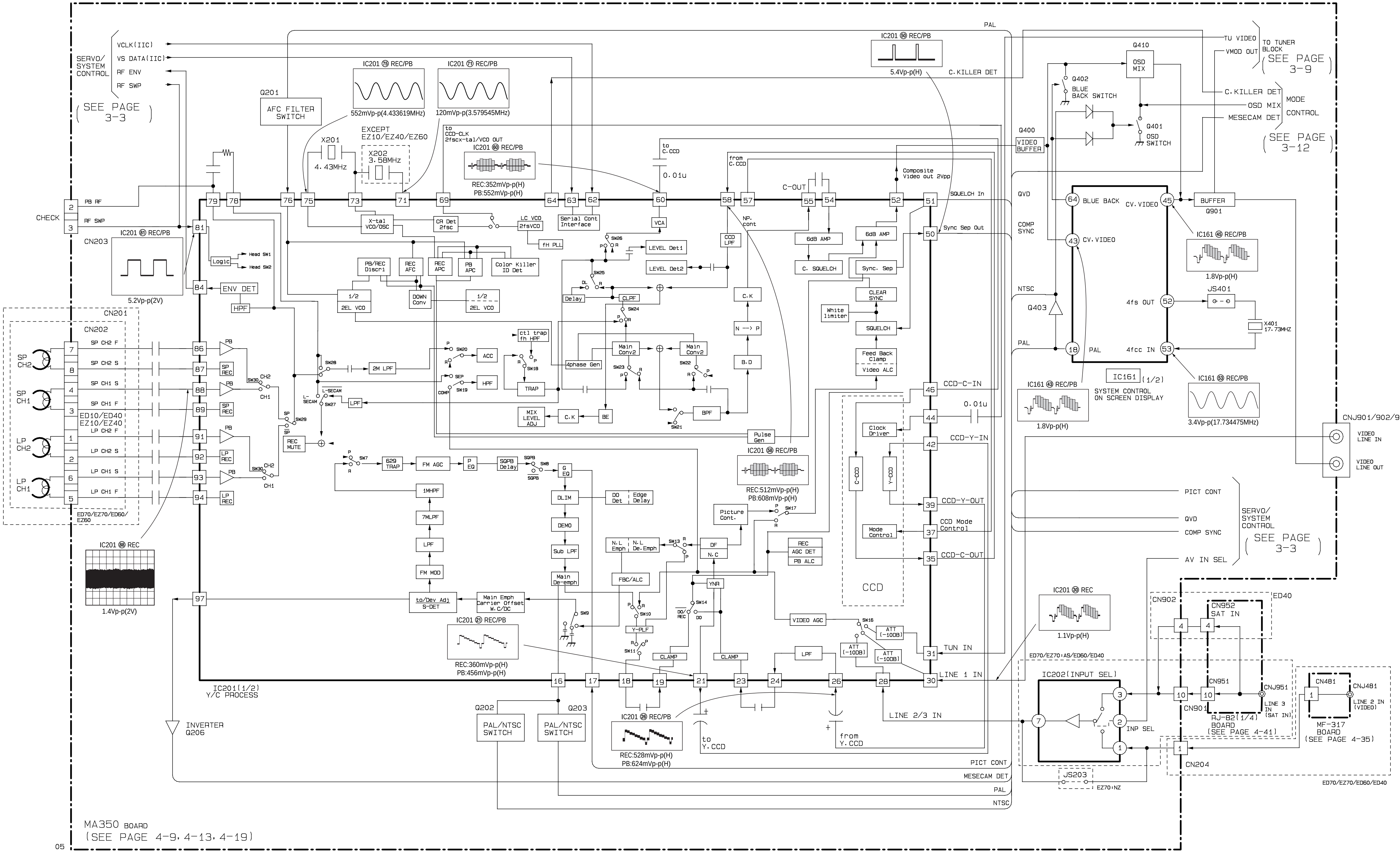

EZ70AS
GK-12 BOARD
(SEE PAGE 4-31)
IC001
ZWEITON PROCESS
EZ70(NZ)
CNJ901
LINE-1 IN
VIDEO
JS203
ED70/EZ70(AS)/ED60/ED40
IC202
INPUT SELECT
IC201
Y/C PROCESSOR
VIDEO
IC161
Q400-403, 410, 901
OSD BLOCK
VIDEO
IN
AERIAL
OUT
TU701
TUNER
AFT
PLL DATA, PLL CLK TU ENB
SW1
SIF OUT
MOD V
TU VIDEO
IIC DATA, IIC CLK
MOD AUDIO
IC161
SYSTEM CONTROL
DRUM MOTOR (M901)
D VS
DRUM MOTOR
D FG
D PG
DRUM FG
DRUM PG
CAPSTAN MOTOR (M902)
CAPSTAN MOTOR
D VS
D FG
CAP FG
EXCEPT ED10/EZ10
CNJ481
MF-317 BOARD(1/3)
(SEE PAGE 4-35)
LINE-2 IN
VIDEO
LINE2 VIDEO
CNJ901/902/903
VIDEO
L
R
LINE OUT
NK-11 BOARD
(SEE PAGE 4-29)
IC1
NICAM PROCESS
C VIDEO, CV OUT
CTL
CTL HEAD
ED40
JS902
EXCEPT EZ40/ED10 EZ10
ED70MN/ED70NZ
SD1, SCK1
AV INSEL 1, 2
SD1, SCK1
RF SWP, RF ENV, COMP SYNC
MESECAM DET
AF ENV, AF REC, AF SWP
AF REC P
CAM +, -
IC130
CAM MOTOR DRIVER
M930 CAM MOTOR
S100
MODE1-4
ROTARY SWITCH (MECHA POSITION)
RJ-82 BOARD(1/2)
(SEE PAGE 4-41)
CNJ952
LINE-3 IN (SAT IN)
VIDEO
SAT
IN_SEL
ED70/EZ70/ED60/EZ60/ED40
IIC DATA
IIC CLK
IIC DATA
IIC CLK
IIC DATA, IIC CLK
PH100
T REEL FG
IC163
EEP ROM
IIC DATA IIC CLK
WRITE CONT
PH101
S REEL FG
AUDIO HEAD
CH1
CH2
IC350
AUDIO REC/PB AMP
AF REC, AF SWP, AF REC P
FM PB, FM REC
ED70/EZ70/ED60/EZ60
IC360
AUDIO HIFI PROCESSOR
LINE OUT 1 AUDIO L
LINE OUT 1 AUDIO R
MOD AUDIO
IIC DATA, IIC CLK
AF SWP
L OUT
R OUT
CNJ901
LINE-1 IN
L
R
LINE-1 IN AUDIO L
LINE-1 IN AUDIO R
ED70/EZ70/ED60/EZ60
EXCEPT ED70/EZ70
JS707
Q101 T SENS
D102
Q102 S SENS
END LED
ED40/EZ40 ED10/EZ10
JS303
NORMAL AUDIO OUT
NORMAL AUDIO IN
LINE-2 IN AUDIO L
LINE-2 IN AUDIO R
LINE-3 IN AUDIO L
LINE-3 IN AUDIO R
EXCEPT ED10/EZ10
MF-317 BOARD(2/3)
(SEE PAGE 4-35)
CNJ481
L
R
LINE-2 IN
ED40
JS491
S101
REC PROOF
KK-18 BOARD :ED10/EZ10
(SEE PAGE 4-39)
KK-19 BOARD :EXCEPT ED10/EZ10
(SEE PAGE 4-37)
S511
EASY TIMER
POWER FAIL
POWER FAIL DET
RESET
RESET PULS GENERATORS
JS301
ED40/EZ40 ED10/EZ10
RJ-82 BOARD(2/2)
(SEE PAGE 4-41)
CNJ953
L
R
LINE-3 IN (SAT IN)
ED40/EZ40
AL3
AR3
JS957
IC301
ED40
INPUT SELECT
L2 AV(L)
NORMAL SAT
IN_SEL
AU L2/SAT
ED10/EZ10
IC450
REMOCON
REMOTE CONTROL RECEIVER
EXCEPT ED10/EZ10
MF-317 BOARD(3/3)
(SEE PAGE 4-35)
IC461
REMOTE CONTROL RECEIVER
S461
I/⏻
KEY1
FUNCTION KEY
ED70/EZ70/ED60/EZ60/ED40
AUDIO HEAD
REC/PB
PS330
SW 12V
IC201
NORMAL AUDIO PROCESSOR
NORMAL AUDIO IN
NORMAL AUDIO OUT
A MUTE
A MUTE
T331, Q332
DS-85 BOARD
(SEE PAGE 4-39)
FUNCTION KEY
KEY2
FUNCTION KEY
ED10/EZ10
ERASE
EXCEPT ED40/ED70/EZ70
ERASE OSC
Q333, Q334
HEAD SWITCH
JS331
ED40/ED70/EZ70
T330, Q330, Q331
ERASE OSC
Q337
HEAD CONTROL SWITCH
REC P
FULL ERASE
IC420
FL DRIVER
S IN
S OUT
S CLK
FLD CS
DMS1, 2
ND420
FLUORESCENT INDICATOR TUBE
POWER LED
DM-85 BOARD
(SEE PAGE 4-39)
FUNCTION KEY
CLICK SHUTTLE
ED70/EZ70
EXCEPT ED10/EZ10
05
AC IN
POWER SUPPLY UNIT
35V
13V
6V
-13V
MA-350 BOARD
(SEE PAGE 4-9, 4-13, 4-15, 4-17, 4-19, 4-21, 4-23, 4-25, 4-27)

3-2. SERVO/SYSTEM CONTROL BLOCK DIAGRAM

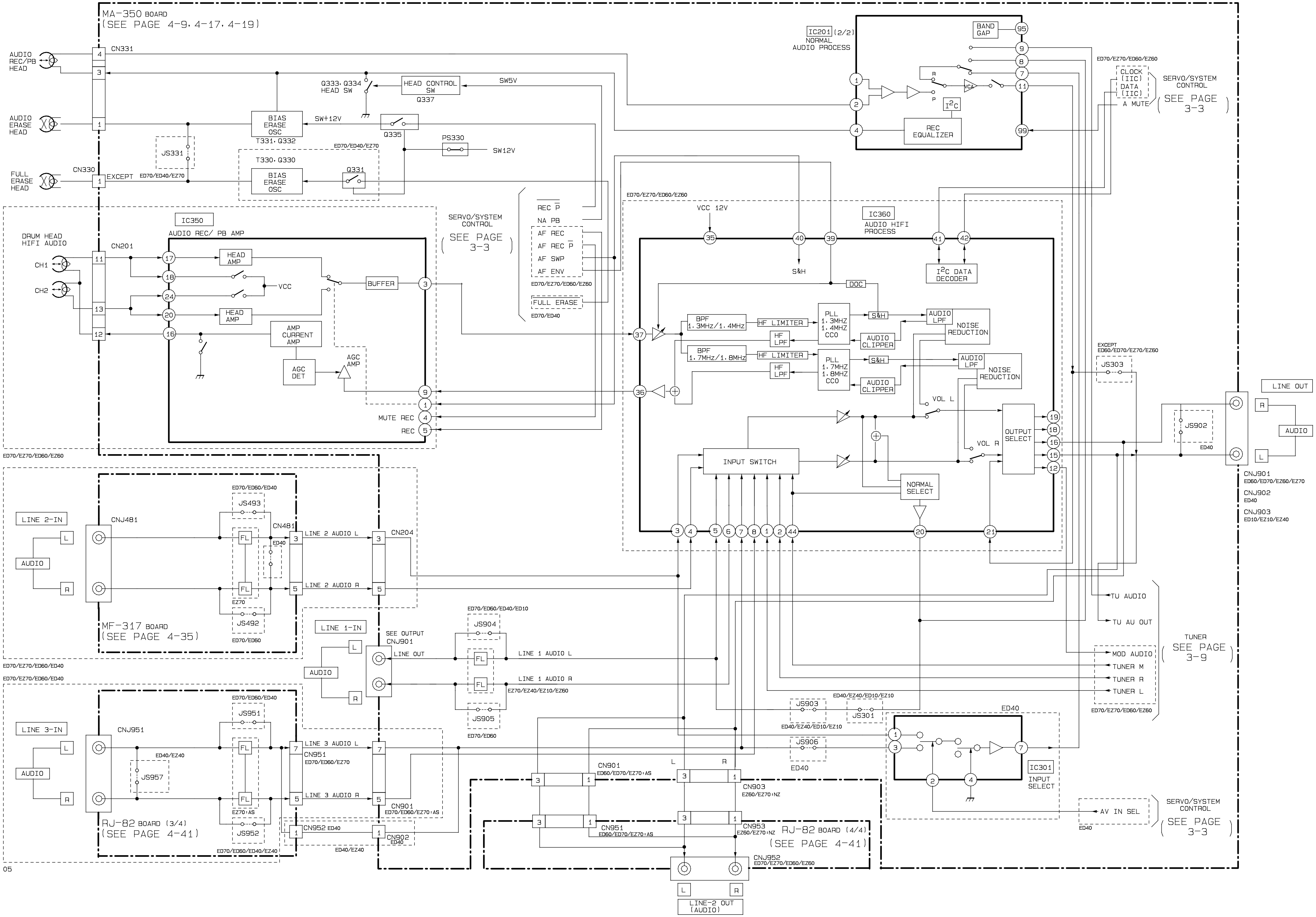

MA-350 BOARD
(SEE PAGE 4-13, 4-16)
IC 161 2/2
SYSTEM CONTROL
TUNER
(SEE PAGE 3-9)
PLL CLK
PLL DATA
TU ENABLE
AFT
SW1
98 PLL CLOCK
100 PLL DATA
99 TU ENABLE
6 TU AFT
1 SW1
IC161 38 REC/PB
4.4Vp-p(2V)
IC161 39 REC/PB
4.7Vp-p(2V)
IC161 70 REC/PB
2.1Vp-p(32.768kHz)
IC161 73 REC/PB
3.5Vp-p(10MHz)
IC161 40 REC/PB
4.9Vp-p(2V)
IC161 24 REC/PB
5.3Vp-p(2V)
IC161 31 REC
5.6Vp-p(2V)
IC161 32 REC
5.6Vp-p(2V)
SDA
SCL
56 IIC DATA
57 IIC CLOCK
6 CLK
5 DATA
WR 7
IC 163
EEP ROM
80 WRITE CONT
AUDIO
(SEE PAGE 3-7, 8)
EZ60/ED60/ED70/EZ70
CLOCK (IIC)
DATA (IIC)
AF SWP
AF ENV
AF REC P̄
AF REC
23 AF SWP
14 AU RF
60 AF REC P̄
59 AF REC
ED40/ED70
FULL ERASE
91 FULL ERASE
NAPB
REC P̄
A MUTE
21 NAPB
92 REC P̄
79 A MUTE
AV IN SEL
ED40
81 IN SEL
S101 (REC PRF)
55 REC PRF
AV IN SEL
ED40/ED70/EZ70:AS/ED60
VIDEO
(SEE PAGE 3-5, 6, 8)
QVD
COMP SYNC
RF ENV
RF SWP
VCLK(IIC)
VSDATA(IIC)
27 QVD
54 C SYNC
13 VIDEO RF
24 RF SWP
62 IIC CLK
63 IIC DATA
Q161
PICT CONT
PWM--->DC
65 APC PWM
3 AFC ERROR
MODE CONTROL
(SEE PAGE 3-12)
KEY1
KEY2
S-IN
S-OUT
S-CLK
FLD CS
REMOCON
DMS DOWN
DMS UP
ED70/EZ70
ETR1
ETR2
7 FUNC KEY1
5 FUNC KEY2
96 S-INO
97 S-OUTO
95 S-CLOCKO
90 FLD CS
82 REMOCON
9 DMS DOWN
4 DMS UP
19 ETR1
20 ETR2
POWER
(SEE PAGE 3-14)
P CONT
75 P CONT
DRUM VS 26
DRUM QR 58
DRUM FG 38
DRUM PG 39
(IN)32kHz 69
(OUT)32kHz 70
(IN)10MHz 72
(OUT)10MHz 73
X162 32.768kHz
X161 10MHz
CAP VS 25
CAP QR 94
CAP RVS 93
CAP TRQ PWM 66
CAP FG 40
CAM 83
MODE1 84
MODE2 85
MODE3 86
MODE4 87
T SENS 12
S SENS 11
END LED 74
T REEL 88
S REEL 89
RESET 16
POWER FAIL 8
CTL (+) 31
CTL (-) 32
H.AMP SW 29
CTL AMP1 34
CTL-AMP3 36
CTL AMP OUT 37
EXCEPT ED10/EZ10
CN101
CN104
ED10/EZ10
DVS
DFG
DPG
DRUM MOTOR
(M901)
DRUM MOTOR DRIVER
FG PICK UP
PG PICK UP
DRUM MOTOR
M
CN102
CAP VS
CAP RVS
CTL-REF
LIMITTER
CAP FG
D5V
CAPSTAN MOTOR
(M902)
CAPSTAN MOTOR DRIVER
CAPSTAN MOTOR
FG PICK UP
IC 130
CAM MOTOR DRIVER
CAM (+) 10
4 IN 2
CAM (-) 2
CN103
M903
CAM MOTOR
S100
ROTARY SWITCH
(MECHA POSITION)
Q101
Q100
UN5V
D102
Q102
LED DRIVER
T REEL FG
PH100
S REEL FG
PH101
6 RESET 8
IC162
CN191
CTL(X)
CTL(Y)
CTL HEAD
ED40/ED70/EZ70
AUDIO DUB
Q191

05

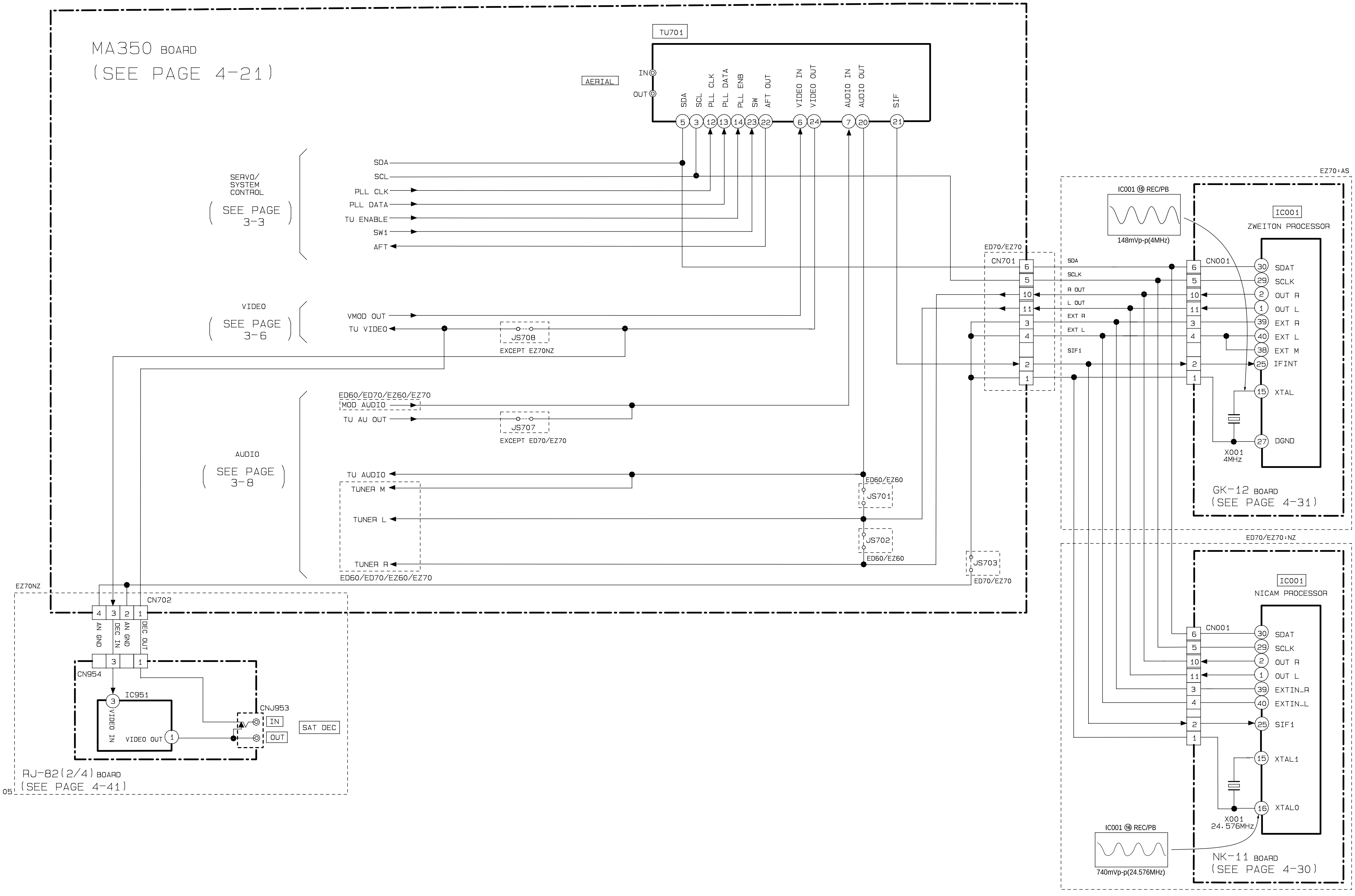
3-3. VIDEO BLOCK DIAGRAM


SERVO/ SYSTEM CONTROL
VCLK(IIC)
VS DATA(IIC)
RF ENV
RF SWP
(SEE PAGE 3-3)
Q201
AFC FILTER SWITCH
IC201 (75) REC/PB
552mVp-p(4.433619MHz)
IC201 (71) REC/PB
120mVp-p(3.579545MHz)
X201 4.43MHz
EXCEPT EZ10/EZ40/EZ60
X202 3.58MHz
to CCD-CLK 2fscx-tal/VCO OUT
IC201 (69) REC/PB
REC:352mVp-p(H)
PB:552mVp-p(H)
to C.CCD
0.01u
from C.CCD
C-OUT
Composite Video out 2Vpp
IC201 (50) REC/PB
5.4Vp-p(H)
C.KILLER DET
PAL
SQUELCH In
Sync Sep Out
CHECK
PB RF
RF SWP
CN203
IC201 (81) REC/PB
5.2Vp-p(2V)
X-tal VCO/OSC
CR Det 2fsc
LC VCO 2fsVCO
fH PLL
Serial Cont Interface
VCA
NP. cont
CCD LPF
6dB AMP
C. SQUELCH
Sync. Sep
CLEAR SYNC
White limiter
SQUELCH
Feed Back Clamp
Video ALC
Logic
Head SW1
Head SW2
ENV DET
HPF
PB/REC Discri
REC AFC
REC APC
PB APC
Color Killer ID Det
1/2 2EL VCO
DOWN Conv
LEVEL Det1
LEVEL Det2
Delay
CLPF
SW24
SW25
SW26
C.K
N → P
B.D
Main Conv2
Main Conv2
SW22
SW23
4phase Gen
ctl trap fh HPF
SW18
TRAP
BPF
SW21
BE
C.K
MIX LEVEL ADJ
ACC
HPF
SW19
SW20
2M LPF
SW28
L-SECAM
SW27
LPF
REC MUTE
SW29
CN201
CN202
SP CH2 F
SP CH2 S
SP CH1 S
SP CH1 F
LP CH2 F
LP CH2 S
LP CH1 S
LP CH1 F
SP CH2
SP CH1
LP CH2
LP CH1
ED10/ED40 EZ10/EZ40
ED70/EZ70/ED60/EZ60
PB
SP REC
LP REC
SW30
SW31
CH1
CH2
IC201 (88) REC
1.4Vp-p(2V)
SW7
629 TRAP
FM AGC
P EQ
SQPB Delay
SW8
G EQ
1MHPF
7MLPF
LPF
FM MOD
DLIM
DO Det
Edge Delay
DEMO
Sub LPF
Main De-emph
to/Dev Adj S-DET
Main Emph Carrier Offset W.C/DC
SW9
IC201 (21) REC/PB
REC:360mVp-p(H)
PB:456mVp-p(H)
N.L Emph
N.L De.Emph
SW13
DF
N.C
FBC/ALC
YNR
SW10
SW11
SW14
Y-PLF
CLAMP
CLAMP
LPF
VIDEO AGC
SW16
ATT (-10DB)
REC AGC DET
PB ALC
Picture Cont.
SW17
Pulse Gen
IC201 (58) REC/PB
REC:512mVp-p(H)
PB:608mVp-p(H)
Clock Driver
C-CCD
Y-CCD
Mode Control
CCD
CCD-C-IN
0.01u
CCD-Y-IN
CCD-Y-OUT
CCD Mode Control
CCD-C-OUT
TUN IN
LINE 1 IN
LINE 2/3 IN
IC201(1/2) Y/C PROCESS
Q202 PAL/NTSC SWITCH
Q203 PAL/NTSC SWITCH
INVERTER Q206
IC201 (20) REC/PB
REC:528mVp-p(H)
PB:624mVp-p(H)
to Y.CCD
from Y.CCD
PICT CONT
MESECAM DET
PAL
NTSC
MA350 BOARD
(SEE PAGE 4-9, 4-13, 4-19)
05
TU VIDEO
VMOD OUT
TO TUNER BLOCK
(SEE PAGE 3-9)
Q410 OSD MIX
Q402 BLUE BACK SWITCH
Q401 OSD SWITCH
C.KILLER DET
OSD MIX
MESECAM DET
MODE CONTROL
(SEE PAGE 3-12)
Q400 VIDEO BUFFER
QVD
COMP SYNC
NTSC
PAL
Q403
BLUE BACK
CV.VIDEO
CV.VIDEO
BUFFER Q901
IC161 (45) REC/PB
1.8Vp-p(H)
JS401
4fs OUT
X401 17.73MHZ
4fcc IN
IC161 (1/2)
SYSTEM CONTROL ON SCREEN DISPLAY
IC161 (43) REC/PB
1.8Vp-p(H)
IC161 (53) REC/PB
3.4Vp-p(17.734475MHz)
CNJ901/902/903
VIDEO LINE IN
VIDEO LINE OUT
PICT CONT
QVD
COMP SYNC
AV IN SEL
SERVO/ SYSTEM CONTROL
(SEE PAGE 3-3)
IC201 (30) REC
1.1Vp-p(H)
CN902
ED40
CN952 SAT IN
ED70/EZ70:AS/ED60/ED40
IC202(INPUT SEL)
INP SEL
CN901
CN951
CNJ951
LINE 3 IN (SAT IN)
RJ-82(1/4) BOARD (SEE PAGE 4-41)
CN481
CNJ481
LINE 2 IN (VIDEO)
MF-317 BOARD (SEE PAGE 4-35)
CN204
JS203
EZ70:NZ
ED70/EZ70/ED60/ED40

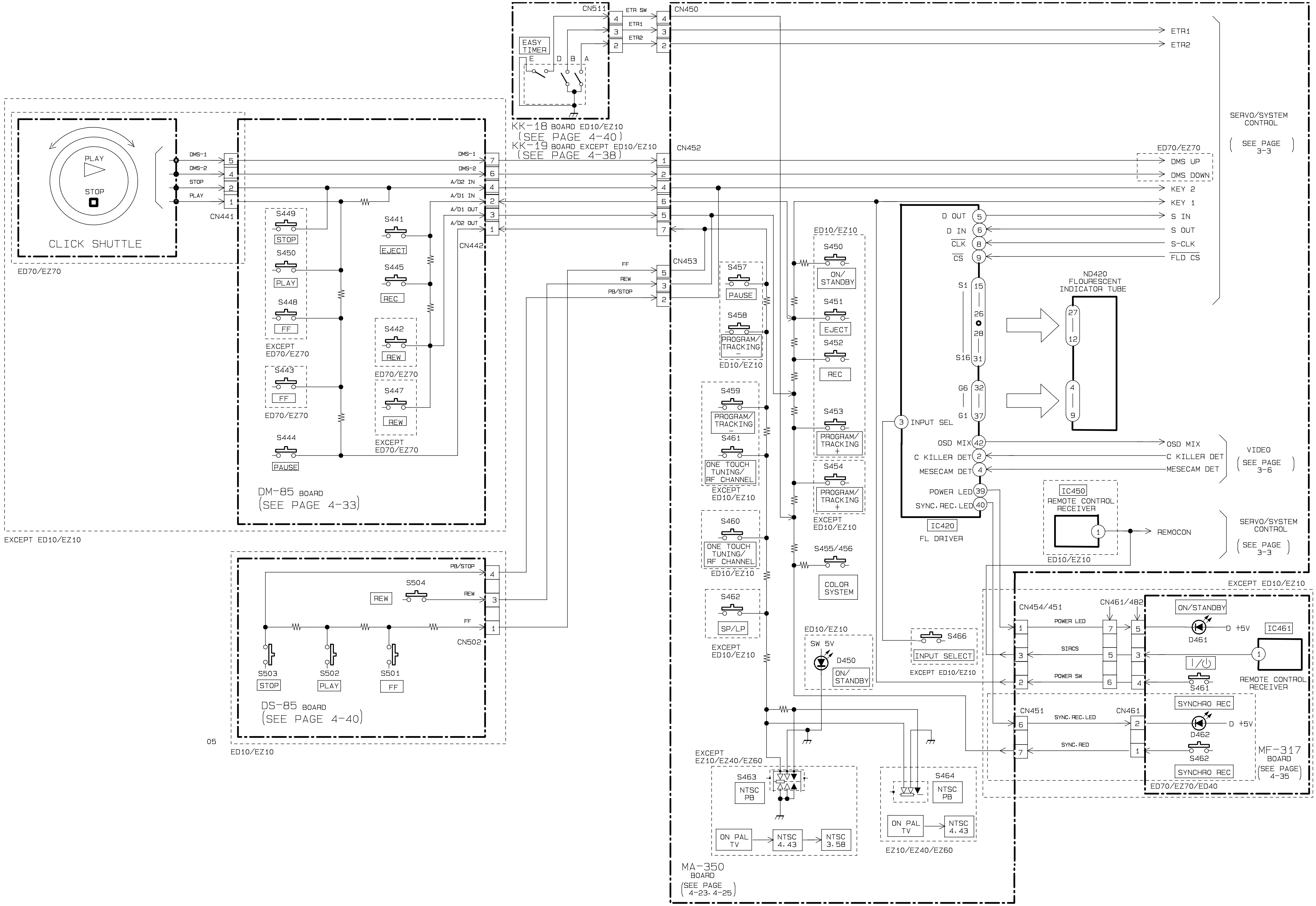
3-4. AUDIO BLOCK DIAGRAM


MA-350 BOARD
(SEE PAGE 4-9, 4-17, 4-19)
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
CN331
CN330
EXCEPT ED70/ED40/EZ70
Q333, Q334 HEAD SW
HEAD CONTROL SW
Q337
SW5V
BIAS ERASE OSC
T331, Q332
SW+12V
Q335
PS330
SW12V
JS331
ED70/ED40/EZ70
T330, Q330
Q331
IC201 (2/2)
NORMAL AUDIO PROCESS
BAND GAP
VCA
I2C
REC EQUALIZER
ED70/EZ70/ED60/EZ60
CLOCK (IIC)
DATA (IIC)
A MUTE
SERVO/SYSTEM CONTROL
SEE PAGE 3-3
DRUM HEAD HIFI AUDIO
CH1
CH2
CN201
IC350
AUDIO REC/ PB AMP
HEAD AMP
VCC
BUFFER
AMP CURRENT AMP
AGC DET
AGC AMP
MUTE REC
REC
ED70/EZ70/ED60/EZ60
REC P
NA PB
AF REC
AF REC P
AF SWP
AF ENV
ED70/EZ70/ED60/EZ60
FULL ERASE
ED70/ED40
ED70/EZ70/ED60/EZ60
VCC 12V
IC360
AUDIO HIFI PROCESS
S&H
DOC
I2C DATA DECODER
BPF 1.3MHz/1.4MHz
HF LIMITER
PLL 1.3MHZ 1.4MHZ CCO
HF LPF
AUDIO CLIPPER
S&H
AUDIO LPF
NOISE REDUCTION
BPF 1.7MHz/1.8MHz
PLL 1.7MHZ 1.8MHZ CCO
VOL L
VOL R
OUTPUT SELECT
INPUT SWITCH
NORMAL SELECT
EXCEPT ED60/ED70/EZ70/EZ60
JS303
LINE OUT
R
L
AUDIO
JS902
ED40
CNJ901 ED60/ED70/EZ60/EZ70
CNJ902 ED40
CNJ903 ED10/EZ10/EZ40
LINE 2-IN
CNJ481
ED70/ED60/ED40
JS493
CN481
ED40
FL
EZ70
JS492
ED70/ED60
LINE 2 AUDIO L
LINE 2 AUDIO R
CN204
MF-317 BOARD
(SEE PAGE 4-35)
ED70/EZ70/ED60/ED40
LINE 1-IN
SEE OUTPUT CNJ901
LINE OUT
ED70/ED60/ED40/ED10
JS904
LINE 1 AUDIO L
LINE 1 AUDIO R
EZ70/EZ40/EZ10/EZ60
JS905
ED70/ED60
TU AUDIO
TU AU OUT
MOD AUDIO
TUNER M
TUNER R
TUNER L
TUNER
SEE PAGE 3-9
ED70/EZ70/ED60/EZ60
LINE 3-IN
CNJ951
ED40/EZ40
JS957
JS951
EZ70:AS
JS952
ED70/ED60/ED40/EZ40
LINE 3 AUDIO L
LINE 3 AUDIO R
CN951 ED70/ED60/EZ70
CN901 ED70/ED60/EZ70:AS
CN952 ED40
CN902 ED40
ED40/EZ40
RJ-82 BOARD (3/4)
(SEE PAGE 4-41)
05
JS903
ED40/EZ40/ED10/EZ10
JS301
ED40/EZ40/ED10/EZ10
JS906
ED40
CN901 ED60/ED70/EZ70:AS
L
R
CN903 EZ60/EZ70:NZ
CN951 ED60/ED70/EZ70:AS
CN953 EZ60/EZ70:NZ
RJ-82 BOARD (4/4)
(SEE PAGE 4-41)
CNJ952 ED70/EZ70/ED60/EZ60
LINE-2 OUT (AUDIO)
ED40
IC301
INPUT SELECT
AV IN SEL
ED40
SERVO/SYSTEM CONTROL
SEE PAGE 3-3

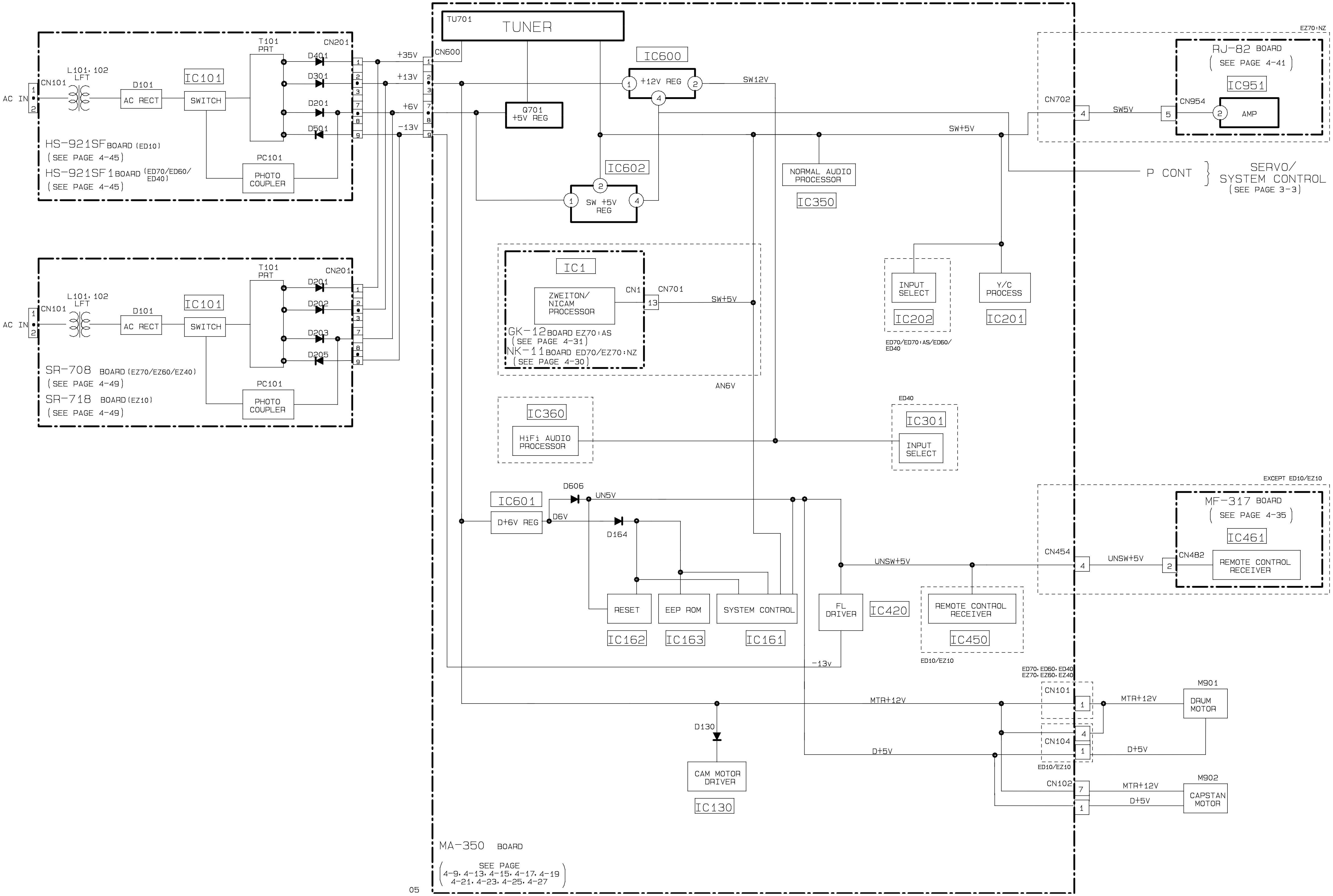
3-5. TUNER BLOCK DIAGRAM


MA350 BOARD
(SEE PAGE 4-21)
TU701
AERIAL
IN
OUT
SDA
SCL
PLL CLK
PLL DATA
PLL ENB
SW
AFT OUT
VIDEO IN
VIDEO OUT
AUDIO IN
AUDIO OUT
SIF
5
3
12
13
14
23
22
6
24
7
20
21
SERVO/
SYSTEM
CONTROL
(SEE PAGE 3-3)
SDA
SCL
PLL CLK
PLL DATA
TU ENABLE
SW1
AFT
VIDEO
(SEE PAGE 3-6)
VMOD OUT
TU VIDEO
JS708
EXCEPT EZ70NZ
AUDIO
(SEE PAGE 3-8)
ED60/ED70/EZ60/EZ70
MOD AUDIO
TU AU OUT
JS707
EXCEPT ED70/EZ70
TU AUDIO
TUNER M
TUNER L
TUNER R
ED60/ED70/EZ60/EZ70
ED60/EZ60
JS701
JS702
ED60/EZ60
JS703
ED70/EZ70
ED70/EZ70
CN701
6
5
10
11
3
4
2
1
SDA
SCLK
R OUT
L OUT
EXT R
EXT L
SIF1
EZ70:AS
IC001 ⑮ REC/PB
148mVp-p(4MHz)
IC001
ZWEITON PROCESSOR
CN001
30 SDAT
29 SCLK
2 OUT R
1 OUT L
39 EXT R
40 EXT L
38 EXT M
25 IFINT
15 XTAL
27 DGND
X001
4MHz
GK-12 BOARD
(SEE PAGE 4-31)
ED70/EZ70:NZ
IC001
NICAM PROCESSOR
CN001
30 SDAT
29 SCLK
2 OUT R
1 OUT L
39 EXTIN_R
40 EXTIN_L
25 SIF1
15 XTAL1
16 XTALO
X001
24.576MHZ
IC001 ⑯ REC/PB
740mVp-p(24.576MHz)
NK-11 BOARD
(SEE PAGE 4-30)
EZ70NZ
CN702
4
3
2
1
AN GND
DEC IN
AN GND
DEC OUT
CN954
3
1
IC951
3
VIDEO IN
VIDEO OUT
1
CNJ953
IN
OUT
SAT DEC
RJ-82(2/4) BOARD
(SEE PAGE 4-41)
05

3-6. MODE CONTROL BLOCK DIAGRAM


CLICK SHUTTLE
PLAY
STOP
ED70/EZ70
DMS-1
DMS-2
STOP
PLAY
CN441
EXCEPT ED10/EZ10
S449 STOP
S450 PLAY
S448 FF
EXCEPT ED70/EZ70
S443 FF
ED70/EZ70
S444 PAUSE
S441 EJECT
S445 REC
S442 REW
ED70/EZ70
S447 REW
EXCEPT ED70/EZ70
DMS-1
DMS-2
A/D2 IN
A/D1 IN
A/D1 OUT
A/D2 OUT
CN442
DM-85 BOARD (SEE PAGE 4-33)
EASY TIMER
E D B A
CN511
ETR SW
ETR1
ETR2
KK-18 BOARD ED10/EZ10 (SEE PAGE 4-40)
KK-19 BOARD EXCEPT ED10/EZ10 (SEE PAGE 4-38)
PB/STOP
REW
FF
S504 REW
S503 STOP
S502 PLAY
S501 FF
CN502
DS-85 BOARD (SEE PAGE 4-40)
05
ED10/EZ10
CN450
CN452
CN453
FF
REW
PB/STOP
S457 PAUSE
S458 PROGRAM/TRACKING –
ED10/EZ10
S459 PROGRAM/TRACKING –
S461 ONE TOUCH TUNING/RF CHANNEL
EXCEPT ED10/EZ10
S460 ONE TOUCH TUNING/RF CHANNEL
ED10/EZ10
S462 SP/LP
EXCEPT ED10/EZ10
ED10/EZ10
S450 ON/STANDBY
S451 EJECT
S452 REC
S453 PROGRAM/TRACKING +
S454 PROGRAM/TRACKING +
EXCEPT ED10/EZ10
S455/456 COLOR SYSTEM
ED10/EZ10
SW 5V
D450 ON/STANDBY
EXCEPT EZ10/EZ40/EZ60
S463 NTSC PB
ON PAL TV → NTSC 4.43 → NTSC 3.58
S464 NTSC PB
ON PAL TV → NTSC 4.43
EZ10/EZ40/EZ60
MA-350 BOARD (SEE PAGE 4-23, 4-25)
D OUT 5
D IN 6
CLK 8
CS 9
S1 15
26
28
S16 31
G6 32
G1 37
3 INPUT SEL
OSD MIX 42
C KILLER DET 2
MESECAM DET 4
POWER LED 39
SYNC.REC.LED 40
IC420 FL DRIVER
ND420 FLOURESCENT INDICATOR TUBE
27
12
4
9
ETR1
ETR2
ED70/EZ70
DMS UP
DMS DOWN
KEY 2
KEY 1
S IN
S OUT
S-CLK
FLD CS
SERVO/SYSTEM CONTROL (SEE PAGE 3-3)
OSD MIX
C KILLER DET
MESECAM DET
VIDEO (SEE PAGE 3-6)
IC450 REMOTE CONTROL RECEIVER
ED10/EZ10
REMOCON
SERVO/SYSTEM CONTROL (SEE PAGE 3-3)
S466 INPUT SELECT
EXCEPT ED10/EZ10
EXCEPT ED10/EZ10
CN454/451
CN461/482
POWER LED
SIRCS
POWER SW
ON/STANDBY
D461
D +5V
IC461
REMOTE CONTROL RECEIVER
S461
CN451
CN461
SYNC.REC.LED
SYNC.REC
SYNCHRO REC
D462
D +5V
S462
SYNCHRO REC
MF-317 BOARD (SEE PAGE 4-35)
ED70/EZ70/ED40

3-7. POWER BLOCK DIAGRAM


AC IN
CN101
L101, 102
LFT
D101
AC RECT
IC101
SWITCH
T101
PRT
CN201
D401
D301
D201
D501
PC101
PHOTO COUPLER
HS-921SF BOARD (ED10)
(SEE PAGE 4-45)
HS-921SF1 BOARD (ED70/ED60/ED40)
(SEE PAGE 4-45)
AC IN
CN101
L101, 102
LFT
D101
AC RECT
IC101
SWITCH
T101
PRT
CN201
D201
D202
D203
D205
PC101
PHOTO COUPLER
SR-708 BOARD (EZ70/EZ60/EZ40)
(SEE PAGE 4-49)
SR-718 BOARD (EZ10)
(SEE PAGE 4-49)
+35V
+13V
+6V
-13V
CN600
TU701
TUNER
Q701
+5V REG
IC600
+12V REG
SW12V
IC602
SW +5V REG
SW+5V
NORMAL AUDIO PROCESSOR
IC350
IC1
ZWEITON/ NICAM PROCESSOR
CN1
CN701
SW+5V
GK-12 BOARD EZ70:AS
(SEE PAGE 4-31)
NK-11 BOARD ED70/EZ70:NZ
(SEE PAGE 4-30)
AN6V
INPUT SELECT
IC202
ED70/ED70:AS/ED60/ED40
Y/C PROCESS
IC201
IC360
HiFi AUDIO PROCESSOR
ED40
IC301
INPUT SELECT
IC601
D+6V REG
D606
UN5V
D6V
D164
RESET
IC162
EEP ROM
IC163
SYSTEM CONTROL
IC161
FL DRIVER
IC420
-13V
REMOTE CONTROL RECEIVER
IC450
ED10/EZ10
D130
CAM MOTOR DRIVER
IC130
MTR+12V
D+5V
MA-350 BOARD
SEE PAGE
(4-9, 4-13, 4-15, 4-17, 4-19, 4-21, 4-23, 4-25, 4-27)
05
EZ70:NZ
RJ-82 BOARD
(SEE PAGE 4-41)
IC951
CN702
SW5V
CN954
AMP
P CONT
SERVO/ SYSTEM CONTROL
(SEE PAGE 3-3)
EXCEPT ED10/EZ10
MF-317 BOARD
(SEE PAGE 4-35)
IC461
CN454
UNSW+5V
CN482
REMOTE CONTROL RECEIVER
UNSW+5V
ED70, ED60, ED40
EZ70, EZ60, EZ40
CN101
CN104
ED10/EZ10
CN102
MTR+12V
D+5V
M901
DRUM MOTOR
MTR+12V
D+5V
M902
CAPSTAN MOTOR

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary mote is printed in each block.)

For printed wiring board:
- o——— : indicates a lead wire mounted on the component side.
- •——— : indicates a lead wire mounted on the printed side.
- ○ : Through hole.
- ■ : Parts mounted on the conductor side.
- ▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

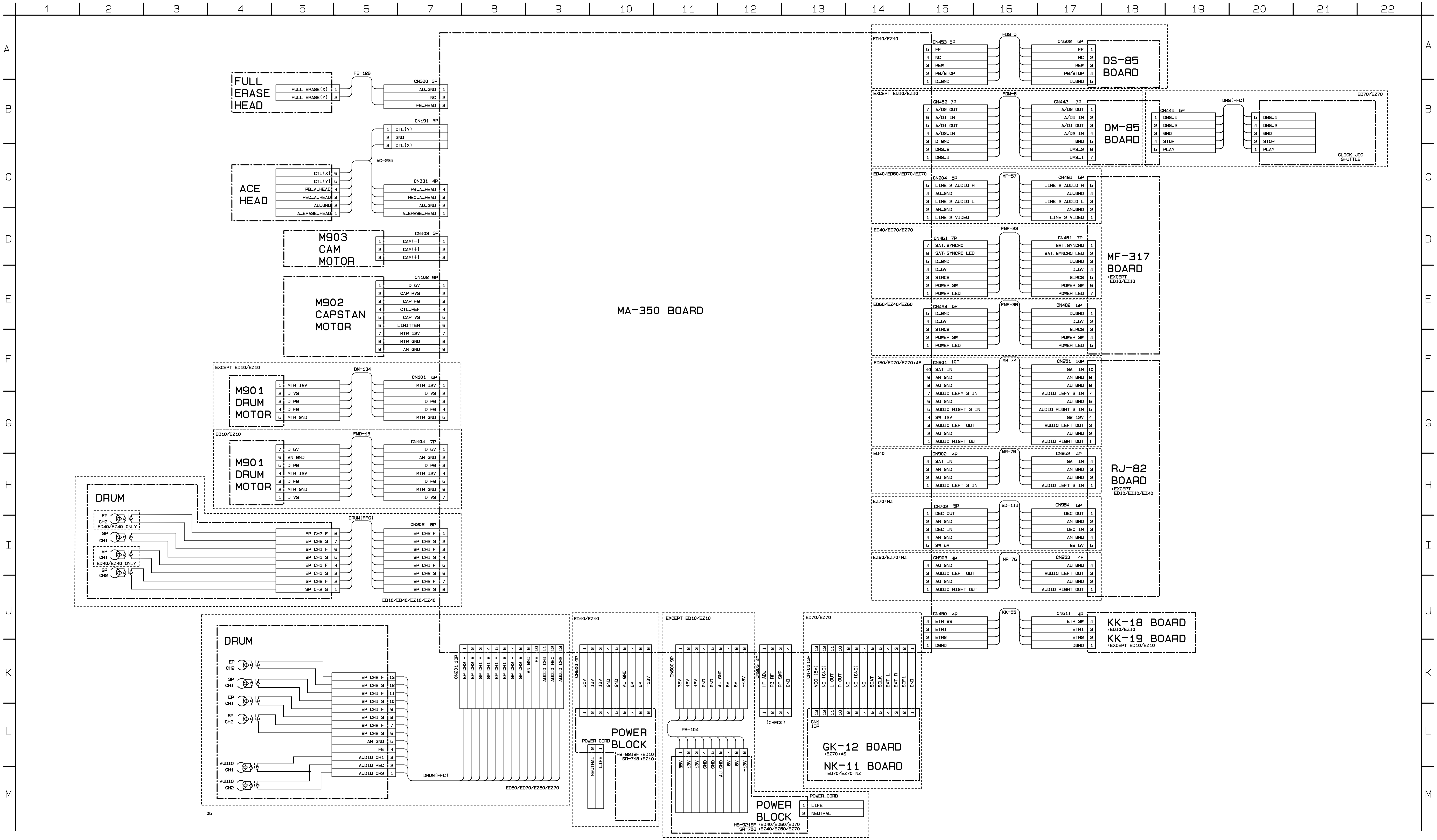
Caution:	
Pattern face side: (Side B)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A)	Parts on the parts face side seen from the parts face are indicated.

For schematic Diagram:
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4 W (Chip resistors : 1/10 W) unless otherwise specified.
  kΩ : 1000Ω, MW : 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair.
- B＋ : B+ Line.
- B－ : B– Line.
- Circled numbers refer to waveforms.
- Voltages are dc between measurement point.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC 10MW).
- Voltage variations may be noted due to normal production tolerances.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

4-1. FRAME SCHEMATIC DIAGRAM

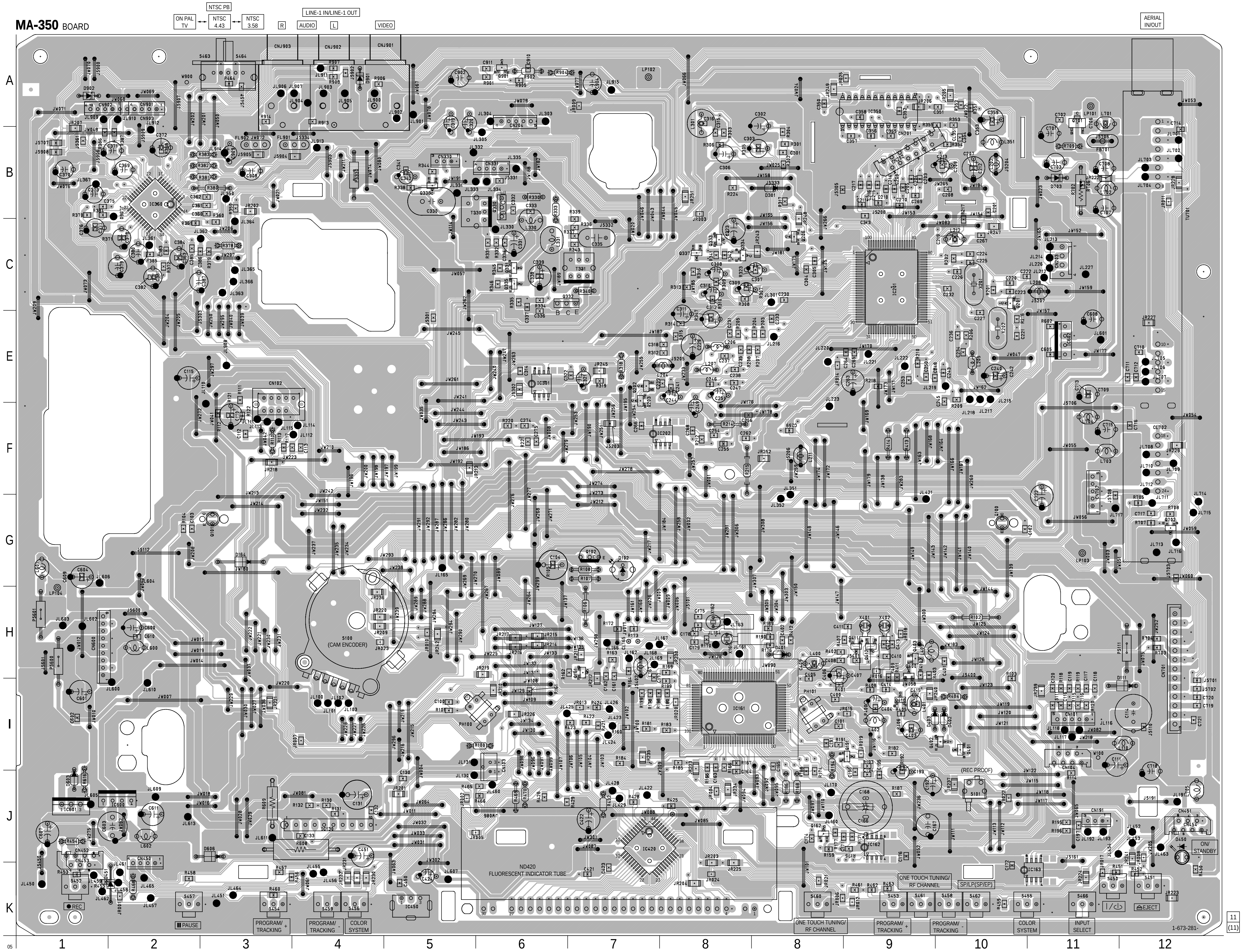

MA-350 BOARD
FULL ERASE HEAD
FE-128
CN330 3P
CN191 3P
AC-235
ACE HEAD
CN331 4P
M903 CAM MOTOR
CN103 3P
M902 CAPSTAN MOTOR
CN102 9P
EXCEPT ED10/EZ10
M901 DRUM MOTOR
DM-134
CN101 5P
ED10/EZ10
FMD-13
CN104 7P
DRUM
ED40/EZ40 ONLY
DRUM(FFC)
CN202 8P
ED10/ED40/EZ10/EZ40
CN201 13P
ED60/ED70/EZ60/EZ70
CN800 9P
POWER BLOCK
POWER_CORD
HS-921SF : ED10
SR-718 : EZ10
CN600 9P
PS-104
HS-921SF : ED40/ED60/ED70
SR-708 : EZ40/EZ60/EZ70
CN602 4P
(CHECK)
CN701 13P
CN1 13P
GK-12 BOARD
: EZ70 : AS
NK-11 BOARD
: ED70/EZ70 : NZ
LIFE
NEUTRAL
FDS-5
CN453 5P
CN502 5P
DS-85 BOARD
EXCEPT ED10/EZ10
FDM-6
CN452 7P
CN442 7P
DM-85 BOARD
DMS(FFC)
CN441 5P
ED70/EZ70
CLICK JOG SHUTTLE
ED40/ED60/ED70/EZ70
MF-57
CN204 5P
CN481 5P
ED40/ED70/EZ70
FMF-33
CN451 7P
CN461 7P
MF-317 BOARD
: EXCEPT ED10/EZ10
ED60/EZ40/EZ60
FMF-36
CN454 5P
CN482 5P
ED60/ED70/EZ70 : AS
MR-74
CN901 10P
CN951 10P
ED40
MR-76
CN902 4P
CN952 4P
RJ-82 BOARD
: EXCEPT ED10/EZ10/EZ40
EZ70 : NZ
SD-111
CN702 5P
CN954 5P
EZ60/EZ70 : NZ
MR-76
CN903 4P
CN953 4P
KK-58
CN450 4P
CN511 4P
KK-18 BOARD
: ED10/EZ10
KK-19 BOARD
: EXCEPT ED10/EZ10
05

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

MA-350 (VIDEO, AUDIO, I/O, SERVO/SYSTEM CONTROL, TUNER) PRINTED WIRING BOARD

– Ref. No.: MA-350 board; 1,000 series –

There are few cases that the part isn't mounted in this model is printed on this diagram.

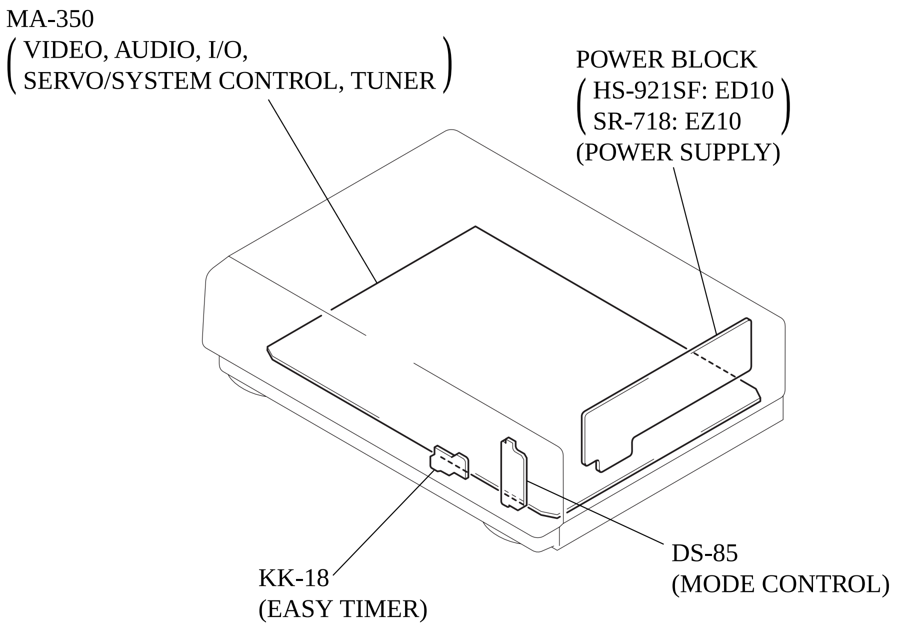

MA-350 BOARD
NTSC PB
ON PAL
TV
NTSC 4.43
NTSC 3.58
LINE-1 IN/LINE-1 OUT
R
AUDIO
L
VIDEO
AERIAL IN/OUT
CNJ903
CNJ902
CNJ901
S463
S464
IC301
IC201
IC161
IC420
CN182
S100 (CAM ENCODER)
ND420 FLUORESCENT INDICATOR TUBE
(REC PROOF)
REC
PAUSE
PROGRAM/ TRACKING
COLOR SYSTEM
ONE TOUCH TUNING/ RF CHANNEL
SP/LP(SP/EP)
INPUT SELECT
EJECT
ON/ STANDBY
1-673-281-
11 (11)
A
B
C
D
E
F
G
H
I
J
K
1
2
3
4
5
6
7
8
8
9
10
11
12

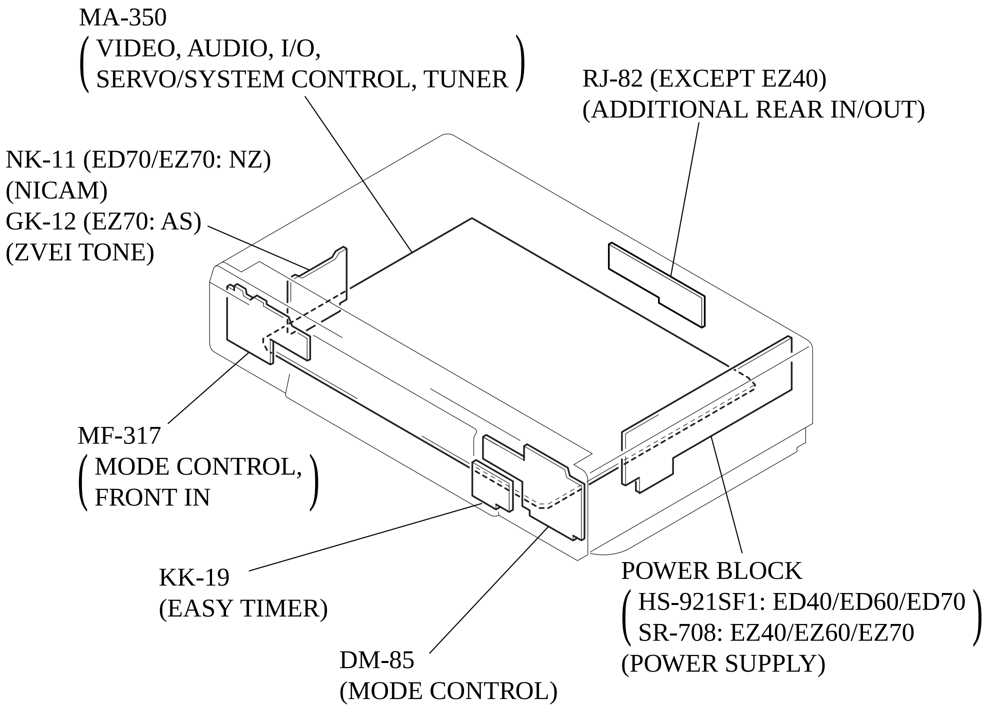
VIDEO, AUDIO, I/O, SERVO/SYSTEM CONTROL, TUNER

MA-350

MA-350 BOARD

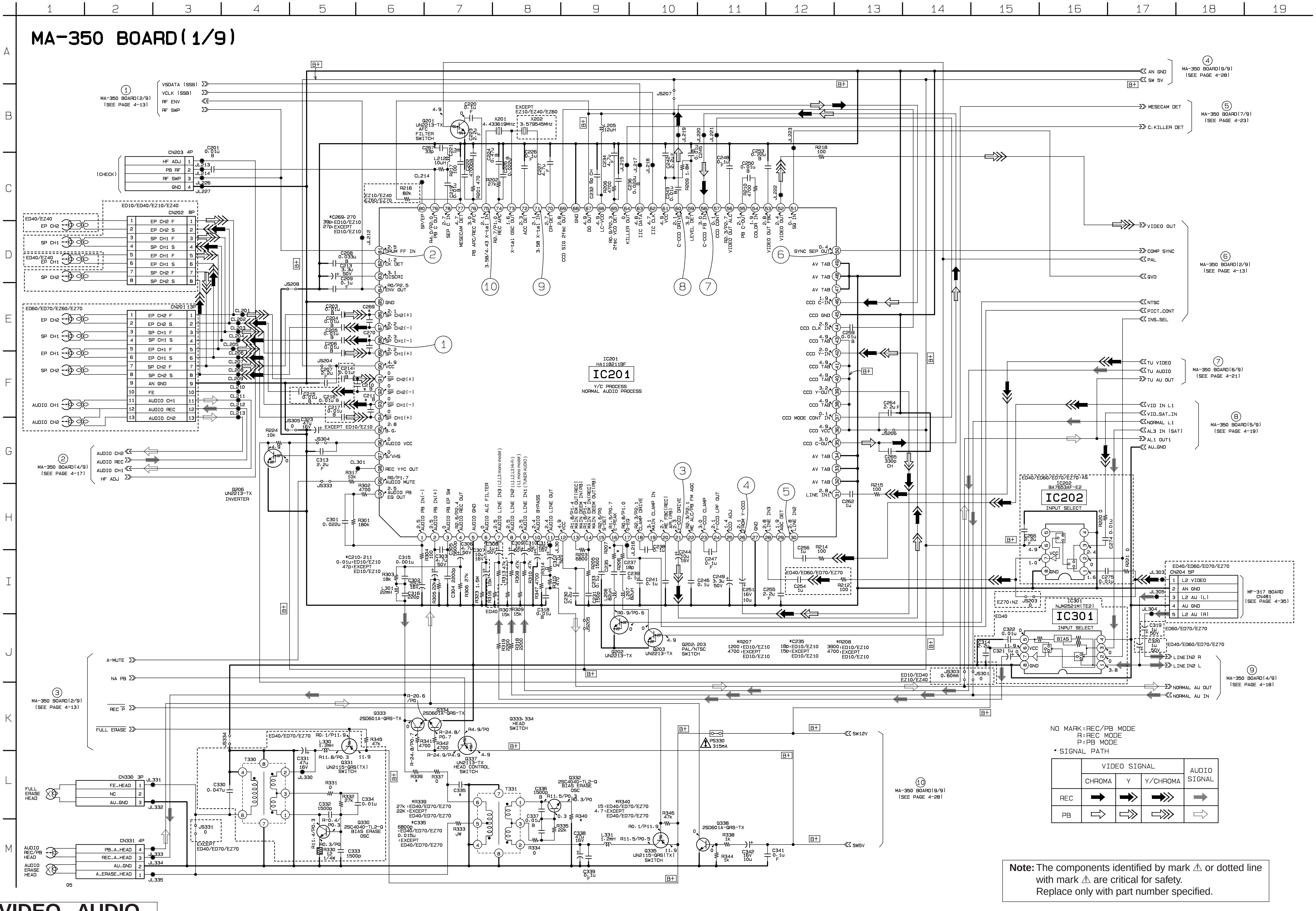
CN101	H-12
CN102	D-3
CN103	H-6
CN104	H-12
CN191	I-12
CN201	B-10
CN202	B-10
CN203	C-12
CN204	A-6
CN330	B-5
CN331	B-6
CN450	I-2
CN451	I-13
CN452	I-1
CN453	I-1
CN454	I-13
CN600	G-1
CN701	G-13
CN702	E-12
CN901	A-2
CN902	A-1
CN903	A-2
D102	F-7
D111	H-13
D164	F-3
D401	G-9
D402	H-11
D403	H-10
D450	I-13
D603	I-1
D606	I-3
D703	B-12
IC130	I-4
IC161	H-8
IC162	I-10
IC163	J-12
IC201	C-10
IC202	E-8
IC301	D-6
IC350	A-10
IC360	B-2
IC420	I-7
IC450	I-2
IC600	I-2
IC601	I-1
IC602	D-12
Q100	F-11
Q101	F-3
Q102	F-7
Q161	G-7
Q191	H-10
Q201	C-11
Q202	D-7
Q203	D-7
Q206	C-9
Q330	B-6
Q331	C-6
Q332	C-6
Q333	C-8
Q334	C-8
Q335	C-6
Q337	C-8
Q338	B-5
Q400	G-10
Q401	H-11
Q402	H-11
Q403	G-10
Q410	H-10
Q701	H-12
Q702	F-13
Q901	A-6


MA-350
(VIDEO, AUDIO, I/O,
SERVO/SYSTEM CONTROL, TUNER)
POWER BLOCK
(HS-921SF: ED10
SR-718: EZ10)
(POWER SUPPLY)
KK-18
(EASY TIMER)
DS-85
(MODE CONTROL)


MA-350
(VIDEO, AUDIO, I/O,
SERVO/SYSTEM CONTROL, TUNER)
RJ-82 (EXCEPT EZ40)
(ADDITIONAL REAR IN/OUT)
NK-11 (ED70/EZ70: NZ)
(NICAM)
GK-12 (EZ70: AS)
(ZVEI TONE)
MF-317
(MODE CONTROL,
FRONT IN)
KK-19
(EASY TIMER)
DM-85
(MODE CONTROL)
POWER BLOCK
(HS-921SF1: ED40/ED60/ED70
SR-708: EZ40/EZ60/EZ70)
(POWER SUPPLY)

MA-350 (VIDEO, AUDIO) SCHEMATIC DIAGRAM • **See page 4-5 for printed wiring board.**

– Ref. No.: MA-350 board; 1,000 series –


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
A B C D E F G H I J K L M
MA-350 BOARD(1/9)
IC201
HA118211BF
Y/C PROCESS
NORMAL AUDIO PROCESS
IC202
BA7653AF-E2
INPUT SELECT
IC301
NJM2521M(TE2)
INPUT SELECT
MA-350 BOARD(2/9) (SEE PAGE 4-13)
MA-350 BOARD(4/9) (SEE PAGE 4-17)
MA-350 BOARD(9/9) (SEE PAGE 4-28)
MA-350 BOARD(7/9) (SEE PAGE 4-23)
MA-350 BOARD(6/9) (SEE PAGE 4-21)
MA-350 BOARD(5/9) (SEE PAGE 4-19)
MA-350 BOARD(4/9) (SEE PAGE 4-18)
MF-317 BOARD CN481 (SEE PAGE 4-35)
VSDATA (SSB)
VCLK (SSB)
RF ENV
RF SWP
CN203 4P
HF ADJ
PB RF
RF SWP
GND
(CHECK)
CN202 8P
CN201 13P
EP CH2 F
EP CH2 S
SP CH1 F
SP CH1 S
EP CH1 F
EP CH1 S
SP CH2 F
SP CH2 S
AN GND
FE
AUDIO CH1
AUDIO REC
AUDIO CH2
AN GND
SW 5V
MESECAM DET
C.KILLER DET
VIDEO OUT
COMP SYNC
PAL
QVD
NTSC
PICT_CONT
INS_SEL
TU VIDEO
TU AUDIO
TU AU OUT
VID IN L1
VID_SAT_IN
NORMAL L1
AL3 IN (SAT)
AL1 OUT1
AU_GND
CN204 5P
L2 VIDEO
AN GND
L2 AU (L)
AU GND
L2 AU (R)
LINE IN2 R
LINE IN2 L
NORMAL AU OUT
NORMAL AU IN
A-MUTE
NA PB
REC P
FULL ERASE
SW12V
SW5V
PS330 315mA
CN330 3P
FE_HEAD
NC
AU_GND
FULL ERASE HEAD
CN331 4P
PB_A_HEAD
REC_A_HEAD
AU_GND
A_ERASE_HEAD
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
Q201 UN2213-TX AFC FILTER SWITCH
Q206 UN2213-TX INVERTER
Q202 UN2213-TX
Q203 UN2213-TX
Q202,203 PAL/NTSC SWITCH
Q333,334 HEAD SWITCH
Q333 2SD601A-QRS-TX
Q334 2SD601A-QRS-TX
Q337 UN2113-TX HEAD CONTROL SWITCH
Q331 UN2115-QRS(TX) SWITCH
Q330 2SC4040-TL2-Q BIAS ERASE OSC
Q332 2SC4040-TL2-Q BIAS ERASE OSC
Q335 UN2115-QRS(TX) SWITCH
Q338 2SD601A-QRS-TX
X201 4.433619MHz
X202 3.579545MHz
T330
T331

NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE

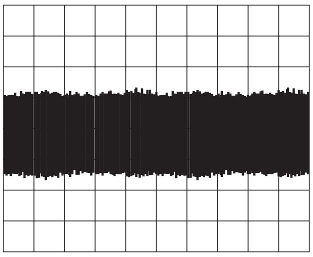
• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	⇛	⇛	➡
PB	⇨	⇨	⇨	⇨

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

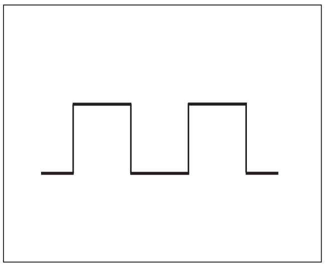
- **Waveforms**

❶ IC201 (88) REC



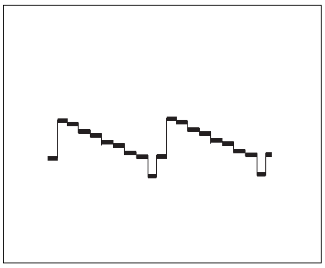
1.4 Vp-p (2V)

❷ IC201 (81) REC/PB



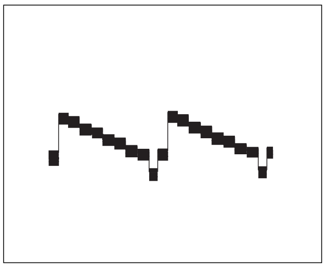
5.2 Vp-p (2 V)

❸ IC201 ㉑ REC/PB



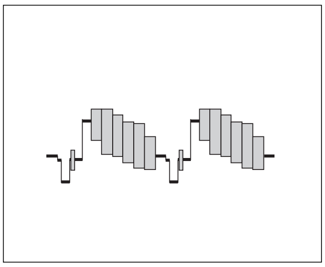
REC : 360 mVp-p (H)
PB : 456 mVp-p (H)

❹ IC201 ㉖ REC/PB



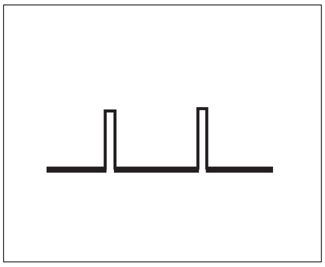
REC : 528 mVp-p (H)
PB : 624 mVp-p (H)

❺ IC201 ㉚ REC



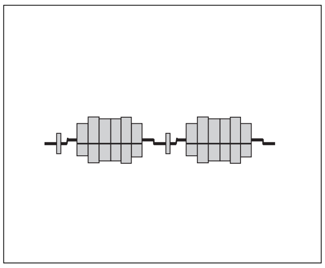
1.1 Vp-p (H)

❻ IC201 ㊿ REC/PB



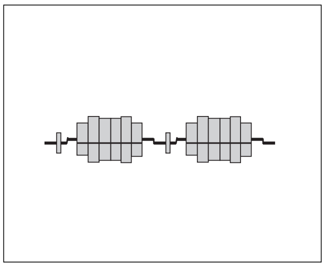
5.4 Vp-p (H)

❼ IC201 (58) REC/PB



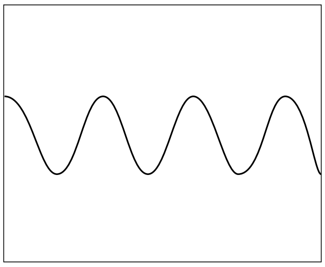
REC : 512 mVp-p (H)
PB : 608 mVp-p (H)

❽ IC201 (60) REC/PB



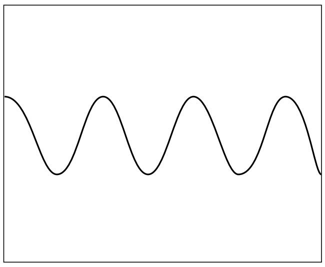
REC : 352 mVp-p (H)
PB : 552 mVp-p (H)

❾ IC201 (71) REC/PB



120 mVp-p (3.579545 MHz)

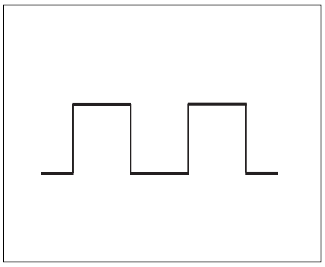
❿ IC201 (75) REC/PB



552 mVp-p (4.433619 MHz)

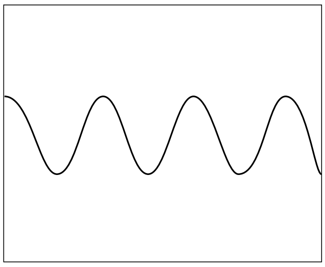
- **Waveforms**

❶ IC161 ㉔ REC/PB



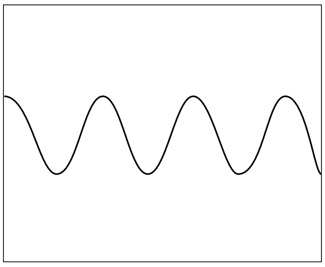
5.3 Vp-p (2V)

❷ IC161 (70) REC/PB



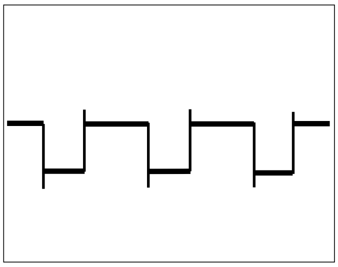
2.1 Vp-p (32.768 kHz)

❸ IC161 (73) REC/PB



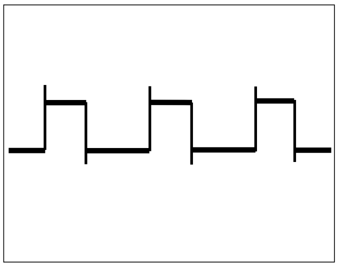
3.5 Vp-p (10 MHz)

❹ IC161 ㉛ REC



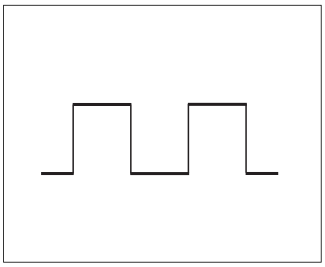
5.6 Vp-p (2 V)

❺ IC161 ㉜ REC



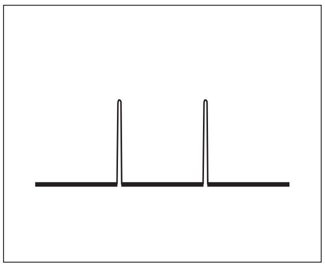
5.6 Vp-p (2 V)

❻ IC161 ㊳ REC/PB



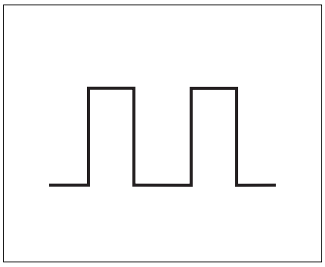
4.4 Vp-p (2 V)

❼ IC161 ㊴ REC/PB



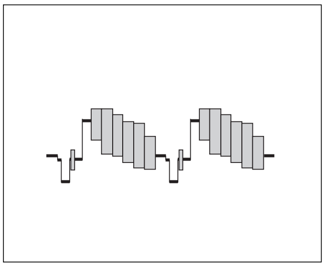
4.7 Vp-p (2 V)

❽ IC161 ㊵ REC/PB



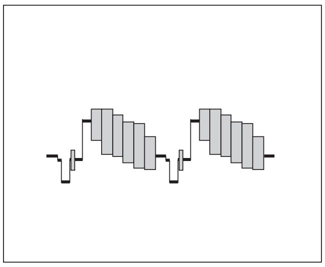
4.9 Vp-p (2 V)

❾ IC161 ㊸ REC/PB



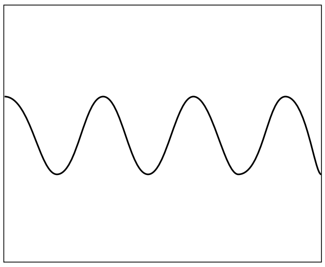
1.8 Vp-p (H)

❿ IC161 ㊺ REC/PB



1.8 Vp-p (H)

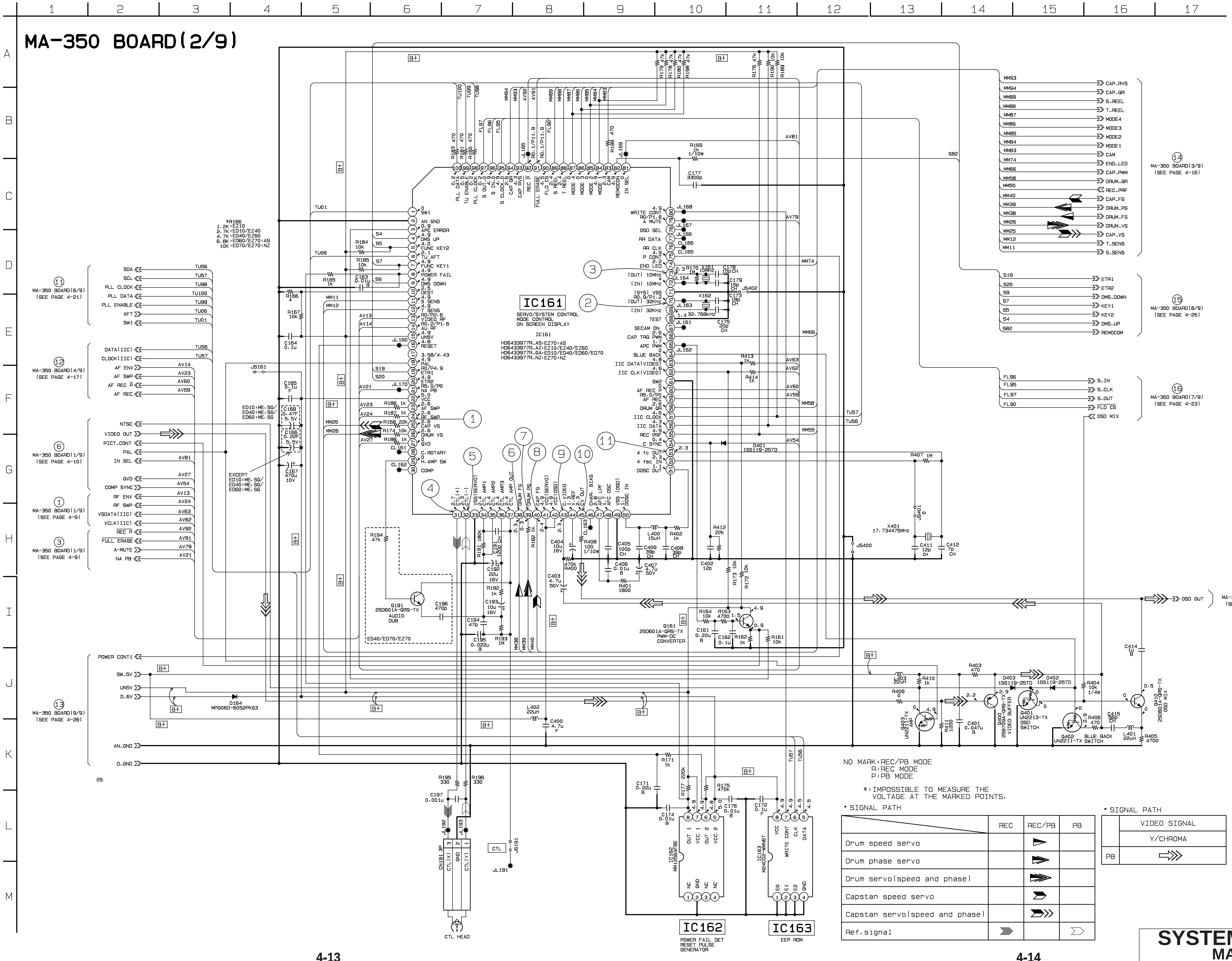
⓫ IC161 (53) REC/PB



3.4 Vp-p (17.734475 MHz)

MA-350 (SYSTEM CONTROL) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.

– Ref. No.: MA-350 board; 1,000 series –


MA-350 BOARD(2/9)
IC161
SERVO/SYSTEM CONTROL
MODE CONTROL
ON SCREEN DISPLAY
IC161
HD6433977R_AS:EZ70:AS
HD6433977R_AZ:EZ10/EZ40/EZ60
HD6433977R_GA:ED10/ED40/ED60/ED70
HD6433977R_NZ:EZ70:NZ
IC162
POWER FAIL DET
RESET PULSE
GENERATOR
IC163
EEP ROM
MA-350 BOARD(6/9) (SEE PAGE 4-21)
MA-350 BOARD(4/9) (SEE PAGE 4-17)
MA-350 BOARD(1/9) (SEE PAGE 4-10)
MA-350 BOARD(1/9) (SEE PAGE 4-9)
MA-350 BOARD(9/9) (SEE PAGE 4-28)
MA-350 BOARD(3/9) (SEE PAGE 4-16)
MA-350 BOARD(8/9) (SEE PAGE 4-25)
MA-350 BOARD(7/9) (SEE PAGE 4-23)
MA-350 BOARD(5/9) (SEE PAGE 4-19)
Q191 2SD601A-QRS-TX AUDIO DUB
Q161 2SD601A-QRS-TX PWM-DC CONVERTER
Q400 2SB709A-QRS-TX VIDEO BUFFER
Q401 UN2213-TX OSD SWITCH
Q402 UN2211-TX BLUE BACK SWITCH
Q403 UN2211-TX AMP
Q410 2SD601A-QRS-TX OSD MIX
CN191 3P
CTL HEAD
X401 17.734475MHz
D164 MPG06D-6052PKG3
D401 1SS119-25TD
D402 1SS119-25TD
D403 1SS119-25TD

NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE

*:IMPOSSIBLE TO MEASURE THE
VOLTAGE AT THE MARKED POINTS.

• SIGNAL PATH

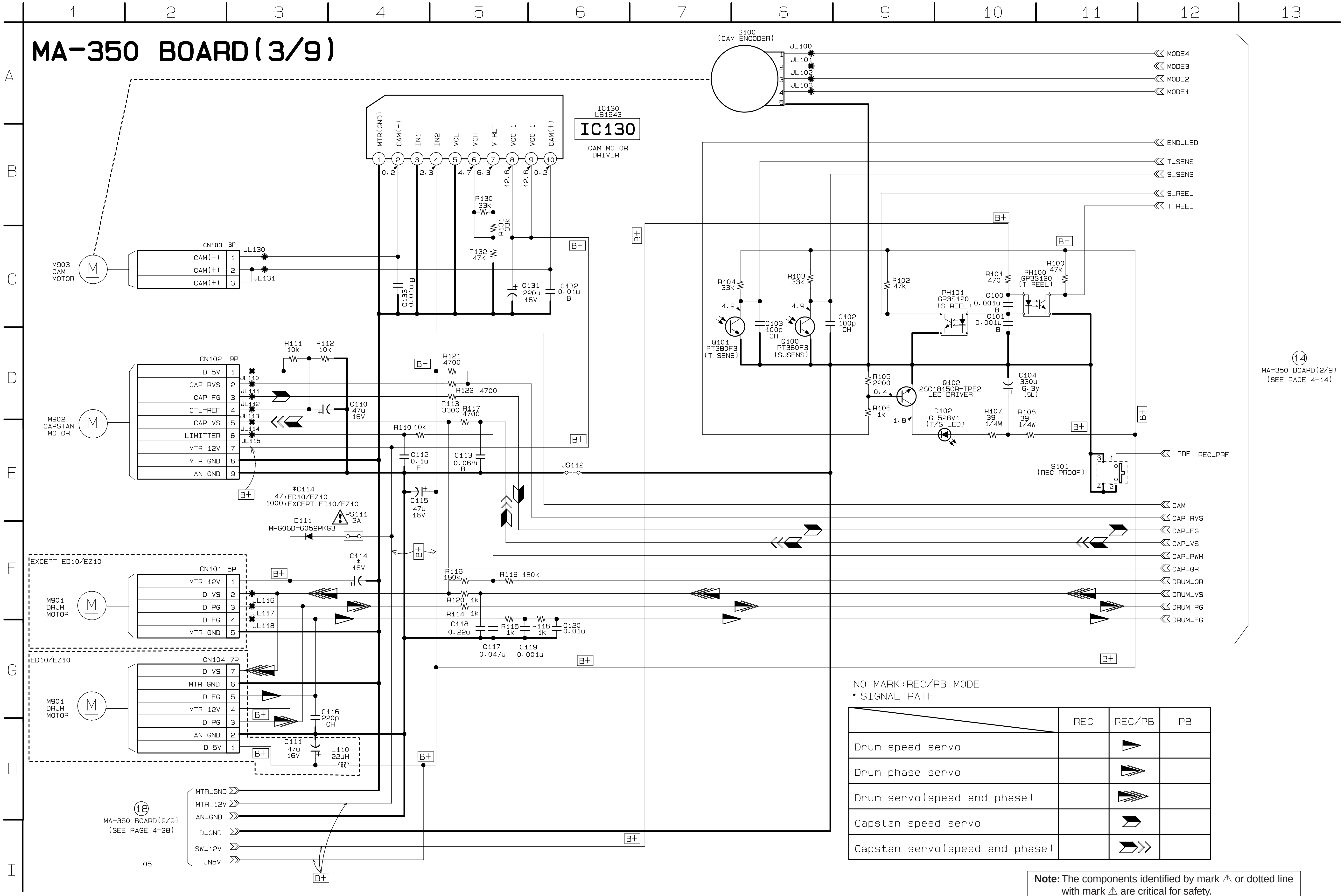
	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶▶	
Drum servo(speed and phase)		▶▶▶	
Capstan speed servo		➤	
Capstan servo(speed and phase)		➤»	
Ref.signal	➧		▷

• SIGNAL PATH

	VIDEO SIGNAL
	Y/CHROMA
PB	⇨»

MA-350 (SERVO CONTROL) SCHEMATIC DIAGRAM **• See page 4-5 for printed wiring board.**

– Ref. No.: MA-350 board; 1,000 series –


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
MA-350 BOARD(3/9)
S100
(CAM ENCODER)
JL100
JL101
JL102
JL103
MODE4
MODE3
MODE2
MODE1
IC130
LB1943
IC130
CAM MOTOR
DRIVER
MTR(GND)
CAM(-)
IN1
IN2
VCL
VCH
V REF
VCC 1
VCC 1
CAM(+)
0.2
2.3
4.7
6.3
12.8
12.8
0.2
R130
33k
R131
33k
R132
47k
C131
220u
16V
C132
0.01u
B
C133
0.01u B
END_LED
T_SENS
S_SENS
S_REEL
T_REEL
B+
CN103 3P
JL130
JL131
CAM(-)
CAM(+)
CAM(+)
M903
CAM
MOTOR
M
R104
33k
R103
33k
R102
47k
R101
470
R100
47k
PH100
GP3S120
(T REEL)
PH101
GP3S120
(S REEL)
C100
0.001u
B
C101
0.001u
B
4.9
4.9
C103
100p
CH
C102
100p
CH
Q101
PT380F3
(T SENS)
Q100
PT380F3
(SUSENS)
R105
2200
0.4
Q102
2SC1815GR-TPE2
LED DRIVER
R106
1k
1.8
D102
GL528V1
(T/S LED)
R107
39
1/4W
R108
39
1/4W
C104
330u
6.3V
(5L)
14
MA-350 BOARD(2/9)
(SEE PAGE 4-14)
CN102 9P
D 5V
CAP RVS
CAP FG
CTL-REF
CAP VS
LIMITTER
MTR 12V
MTR GND
AN GND
JL110
JL111
JL112
JL113
JL114
JL115
M902
CAPSTAN
MOTOR
R111
10k
R112
10k
C110
47u
16V
R121
4700
R122 4700
R113
3300
R117
4700
R110 10k
C112
0.1u
F
C113
0.068u
B
JS112
S101
(REC PROOF)
PRF
REC_PRF
*C114
47:ED10/EZ10
1000:EXCEPT ED10/EZ10
D111
MPG06D-6052PKG3
PS111
2A
C115
47u
16V
C114
*
16V
CAM
CAP_RVS
CAP_FG
CAP_VS
CAP_PWM
CAP_QR
DRUM_QR
DRUM_VS
DRUM_PG
DRUM_FG
EXCEPT ED10/EZ10
CN101 5P
MTR 12V
D VS
D PG
D FG
MTR GND
JL116
JL117
JL118
M901
DRUM
MOTOR
R116
180k
R119 180k
R120 1k
R114 1k
C118
0.22u
R115
1k
R118
1k
C120
0.01u
C117
0.047u
C119
0.001u
ED10/EZ10
CN104 7P
D VS
MTR GND
D FG
MTR 12V
D PG
AN GND
D 5V
M901
DRUM
MOTOR
C116
220p
CH
C111
47u
16V
L110
22uH
18
MA-350 BOARD(9/9)
(SEE PAGE 4-28)
MTR_GND
MTR_12V
AN_GND
D_GND
SW_12V
UN5V
05

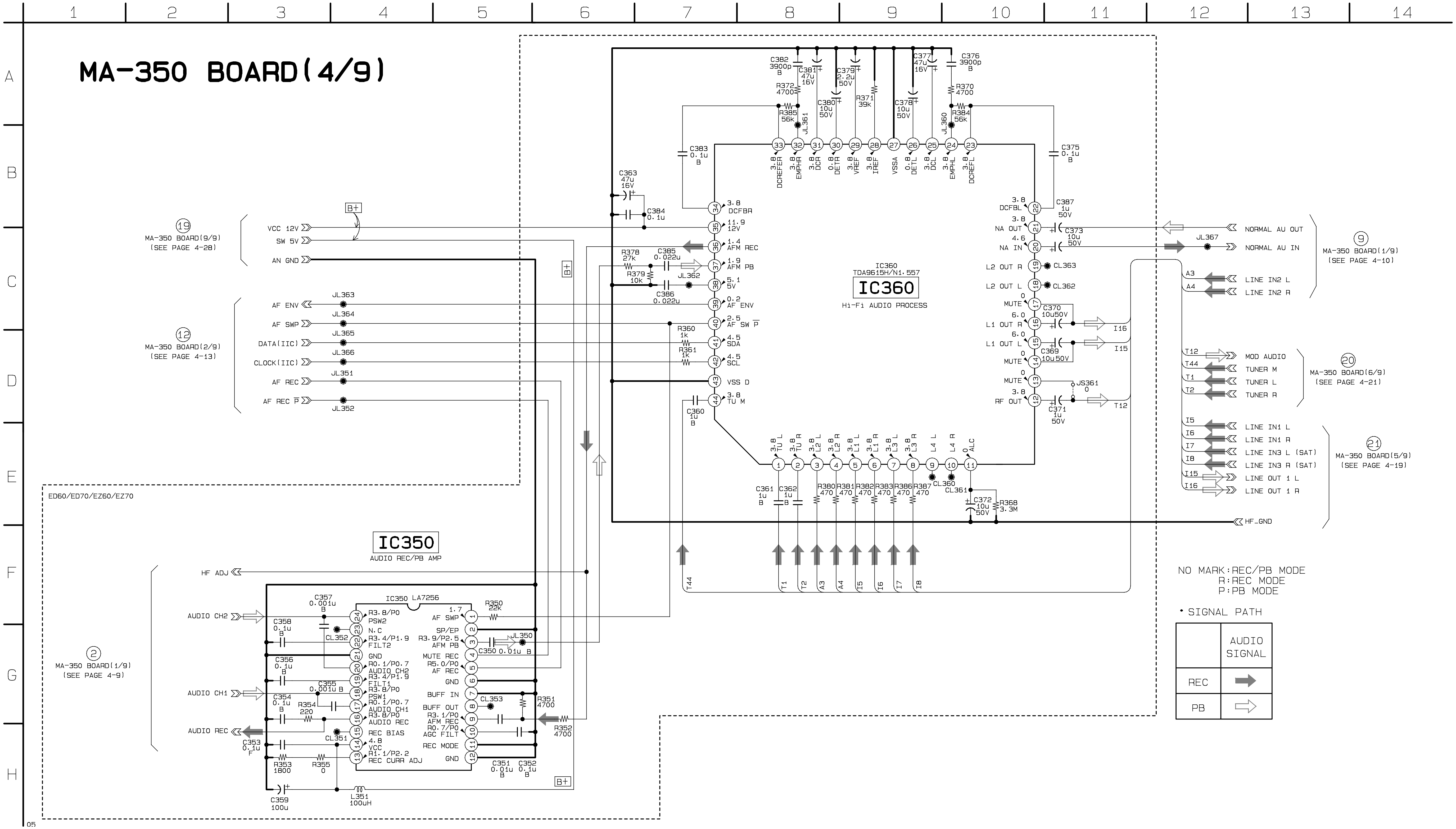
NO MARK:REC/PB MODE
• SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		⊳	
Drum servo(speed and phase)		⋙	
Capstan speed servo		➩	
Capstan servo(speed and phase)		➩》	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

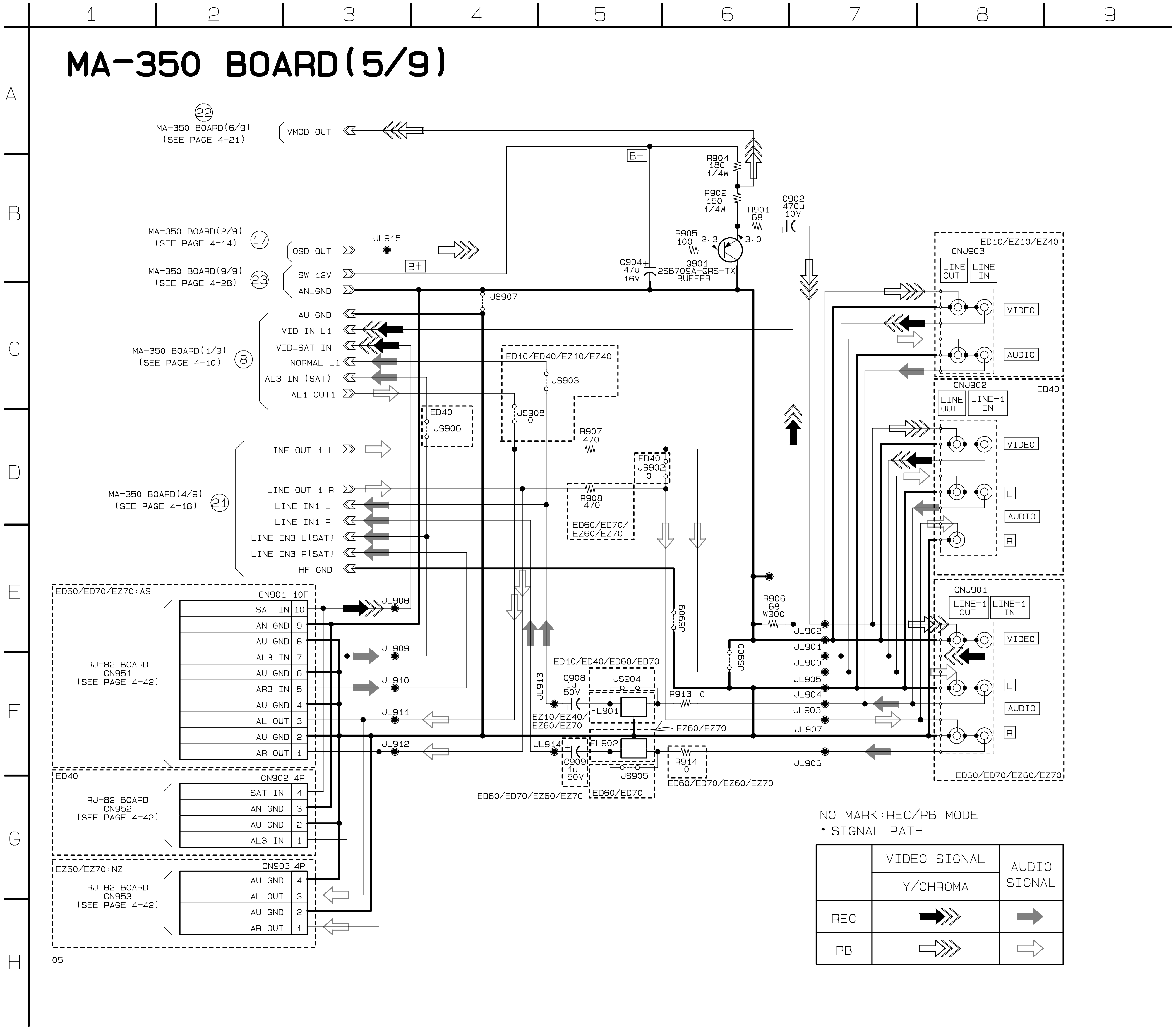
MA-350 (Hi-Fi AUDIO) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.

– Ref. No.: MA-350 board; 1,000 series –


MA-350 BOARD(4/9)
IC360
TDA9615H/N1.557
Hi-Fi AUDIO PROCESS
IC350
AUDIO REC/PB AMP
IC350 LA7256
ED60/ED70/EZ60/EZ70
MA-350 BOARD(9/9) (SEE PAGE 4-28)
VCC 12V
SW 5V
AN GND
MA-350 BOARD(2/9) (SEE PAGE 4-13)
AF ENV
AF SWP
DATA(IIC)
CLOCK(IIC)
AF REC
AF REC P
MA-350 BOARD(1/9) (SEE PAGE 4-9)
HF ADJ
AUDIO CH2
AUDIO CH1
AUDIO REC
MA-350 BOARD(1/9) (SEE PAGE 4-10)
NORMAL AU OUT
NORMAL AU IN
LINE IN2 L
LINE IN2 R
MA-350 BOARD(6/9) (SEE PAGE 4-21)
MOD AUDIO
TUNER M
TUNER L
TUNER R
MA-350 BOARD(5/9) (SEE PAGE 4-19)
LINE IN1 L
LINE IN1 R
LINE IN3 L (SAT)
LINE IN3 R (SAT)
LINE OUT 1 L
LINE OUT 1 R
HF_GND
DCFBR
AFM REC
AFM PB
AF ENV
AF SW P
SDA
SCL
VSS D
TU M
DCFEFR
EMPHR
DCR
DETR
VREF
IREF
VSSA
DETL
DCL
EMPHL
DCREFL
DCFBL
NA OUT
NA IN
L2 OUT R
L2 OUT L
MUTE
L1 OUT R
L1 OUT L
RF OUT
TU L
TU R
L2 L
L2 R
L1 L
L1 R
L3 L
L3 R
L4 L
L4 R
ALC
AF SWP
SP/EP
AFM PB
MUTE REC
AF REC
GND
BUFF IN
BUFF OUT
AFM REC
AGC FILT
REC MODE
PSW2
N.C
FILT2
AUDIO CH2
FILT1
PSW1
AUDIO CH1
AUDIO REC
REC BIAS
VCC
REC CURR ADJ
NO MARK:REC/PB MODE
R:REC MODE
P:PB MODE
• SIGNAL PATH
AUDIO SIGNAL
REC
PB
05

MA-350 (I/O) SCHEMATIC DIAGRAM **• See page 4-5 for printed wiring board.**

– Ref. No.: MA-350 board; 1,000 series –


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
MA-350 BOARD(5/9)
22
MA-350 BOARD(6/9)
(SEE PAGE 4-21)
VMOD OUT
B+
R904
180
1/4W
R902
150
1/4W
R901
68
C902
470u
10V
R905
100
2.3
3.0
Q901
2SB709A-QRS-TX
BUFFER
C904
47u
16V
MA-350 BOARD(2/9)
(SEE PAGE 4-14)
17
OSD OUT
JL915
MA-350 BOARD(9/9)
(SEE PAGE 4-28)
23
SW 12V
AN_GND
JS907
AU_GND
VID IN L1
VID_SAT IN
NORMAL L1
AL3 IN (SAT)
AL1 OUT1
MA-350 BOARD(1/9)
(SEE PAGE 4-10)
8
ED10/ED40/EZ10/EZ40
JS903
ED40
JS906
JS908
0
R907
470
LINE OUT 1 L
LINE OUT 1 R
LINE IN1 L
LINE IN1 R
LINE IN3 L(SAT)
LINE IN3 R(SAT)
HF_GND
MA-350 BOARD(4/9)
(SEE PAGE 4-18)
21
ED40
JS902
0
R908
470
ED60/ED70/
EZ60/EZ70
ED10/EZ10/EZ40
CNJ903
LINE OUT
LINE IN
VIDEO
AUDIO
CNJ902
ED40
LINE OUT
LINE-1 IN
VIDEO
L
AUDIO
R
CNJ901
LINE-1 OUT
LINE-1 IN
VIDEO
L
AUDIO
R
ED60/ED70/EZ60/EZ70
ED60/ED70/EZ70:AS
CN901 10P
SAT IN 10
AN GND 9
AU GND 8
AL3 IN 7
AU GND 6
AR3 IN 5
AU GND 4
AL OUT 3
AU GND 2
AR OUT 1
RJ-82 BOARD
CN951
(SEE PAGE 4-42)
JL908
JL909
JL910
JL911
JL912
JL913
JS909
JS900
R906
68
W900
JL902
JL901
JL900
JL905
JL904
JL903
JL907
JL906
ED10/ED40/ED60/ED70
C908
1u
50V
JS904
EZ10/EZ40/
EZ60/EZ70
FL901
R913 0
EZ60/EZ70
JL914
FL902
C909
1u
50V
JS905
R914
0
ED60/ED70/EZ60/EZ70
ED60/ED70
ED60/ED70/EZ60/EZ70
ED40
CN902 4P
SAT IN 4
AN GND 3
AU GND 2
AL3 IN 1
RJ-82 BOARD
CN952
(SEE PAGE 4-42)
EZ60/EZ70:NZ
CN903 4P
AU GND 4
AL OUT 3
AU GND 2
AR OUT 1
RJ-82 BOARD
CN953
(SEE PAGE 4-42)
05

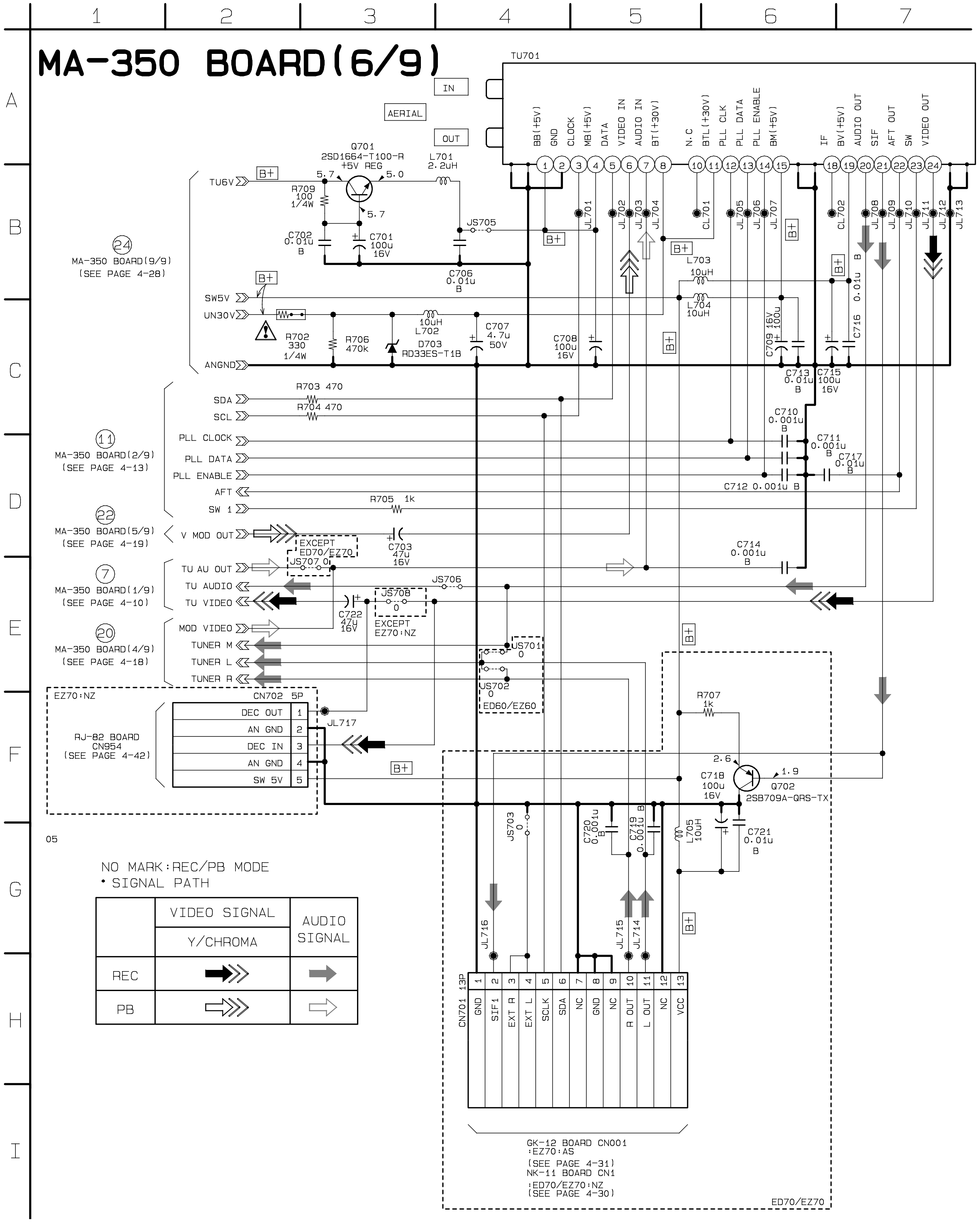
NO MARK:REC/PB MODE

• SIGNAL PATH

	VIDEO SIGNAL Y/CHROMA	AUDIO SIGNAL
REC	➡》	➡
PB	⇨》	⇨

MA-350 (TUNER) SCHEMATIC DIAGRAM **• See page 4-5 for printed wiring board.**

– Ref. No.: MA-350 board; 1,000 series –


MA-350 BOARD(6/9)
TU701
IN
AERIAL
OUT
BB(+5V)
GND
CLOCK
MB(+5V)
DATA
VIDEO IN
AUDIO IN
BT(+30V)
N.C
BTL(+30V)
PLL CLK
PLL DATA
PLL ENABLE
BM(+5V)
IF
BV(+5V)
AUDIO OUT
SIF
AFT OUT
SW
VIDEO OUT
Q701
2SD1664-T100-R
+5V REG
L701
2.2uH
R709
100
1/4W
C702
0.01u
B
C701
100u
16V
C706
0.01u
B
JS705
TU6V
SW5V
UN30V
ANGND
R702
330
1/4W
R706
470k
L702
10uH
D703
RD33ES-T1B
C707
4.7u
50V
C708
100u
16V
L703
10uH
L704
10uH
C709 16V 100u
C713 0.01u B
C715 100u 16V
C716 0.01u B
C710 0.001u B
C711 0.001u B
C717 0.01u B
C712 0.001u B
C714 0.001u B
R703 470
R704 470
R705 1k
C703 47u 16V
C722 47u 16V
JS706
JS707 0
JS708 0
EXCEPT ED70/EZ70
EXCEPT EZ70:NZ
JS701 0
JS702 0
ED60/EZ60
JL701
JL702
JL703
JL704
CL701
JL705
JL706
JL707
CL702
JL708
JL709
JL710
JL711
JL712
JL713
JL714
JL715
JL716
JL717
24
MA-350 BOARD(9/9)
(SEE PAGE 4-28)
11
MA-350 BOARD(2/9)
(SEE PAGE 4-13)
22
MA-350 BOARD(5/9)
(SEE PAGE 4-19)
7
MA-350 BOARD(1/9)
(SEE PAGE 4-10)
20
MA-350 BOARD(4/9)
(SEE PAGE 4-18)
SDA
SCL
PLL CLOCK
PLL DATA
PLL ENABLE
AFT
SW 1
V MOD OUT
TU AU OUT
TU AUDIO
TU VIDEO
MOD VIDEO
TUNER M
TUNER L
TUNER R
EZ70:NZ
CN702 5P
DEC OUT
AN GND
DEC IN
AN GND
SW 5V
RJ-82 BOARD
CN954
(SEE PAGE 4-42)
R707
1k
C718
100u
16V
Q702
2SB709A-QRS-TX
2.6
1.9
L705
10uH
C719
0.001u B
C720
0.001u B
C721
0.01u B
JS703 0
CN701 13P
GND
SIF1
EXT R
EXT L
SCLK
SDA
NC
GND
NC
R OUT
L OUT
NC
VCC
GK-12 BOARD CN001
:EZ70:AS
(SEE PAGE 4-31)
NK-11 BOARD CN1
:ED70/EZ70:NZ
(SEE PAGE 4-30)
ED70/EZ70
B+
05
5.7
5.0
1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I

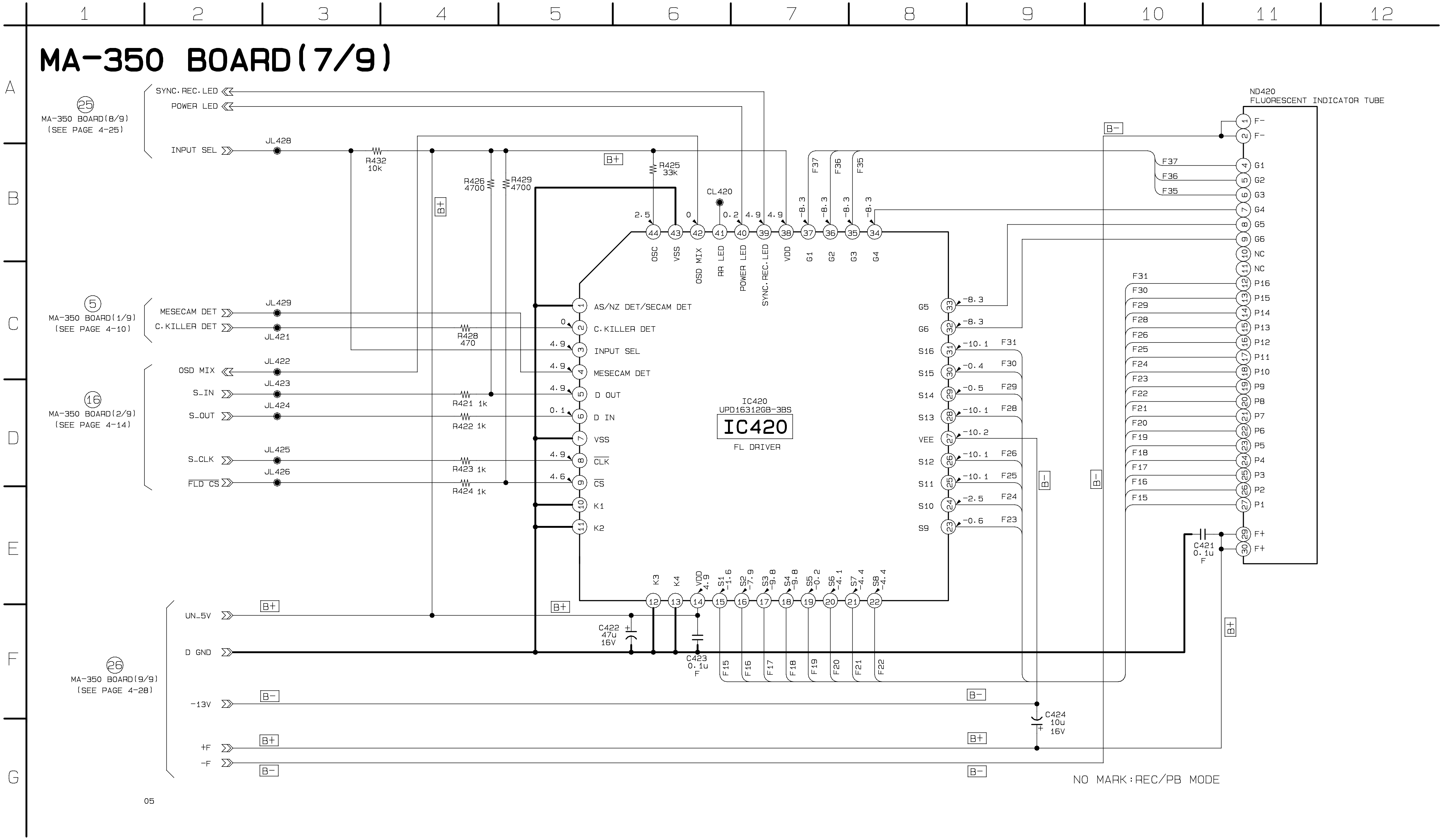
NO MARK: REC/PB MODE
• SIGNAL PATH

	VIDEO SIGNAL	AUDIO SIGNAL
	Y/CHROMA	
REC	➡⟫	➡
PB	⇨⟫	⇨

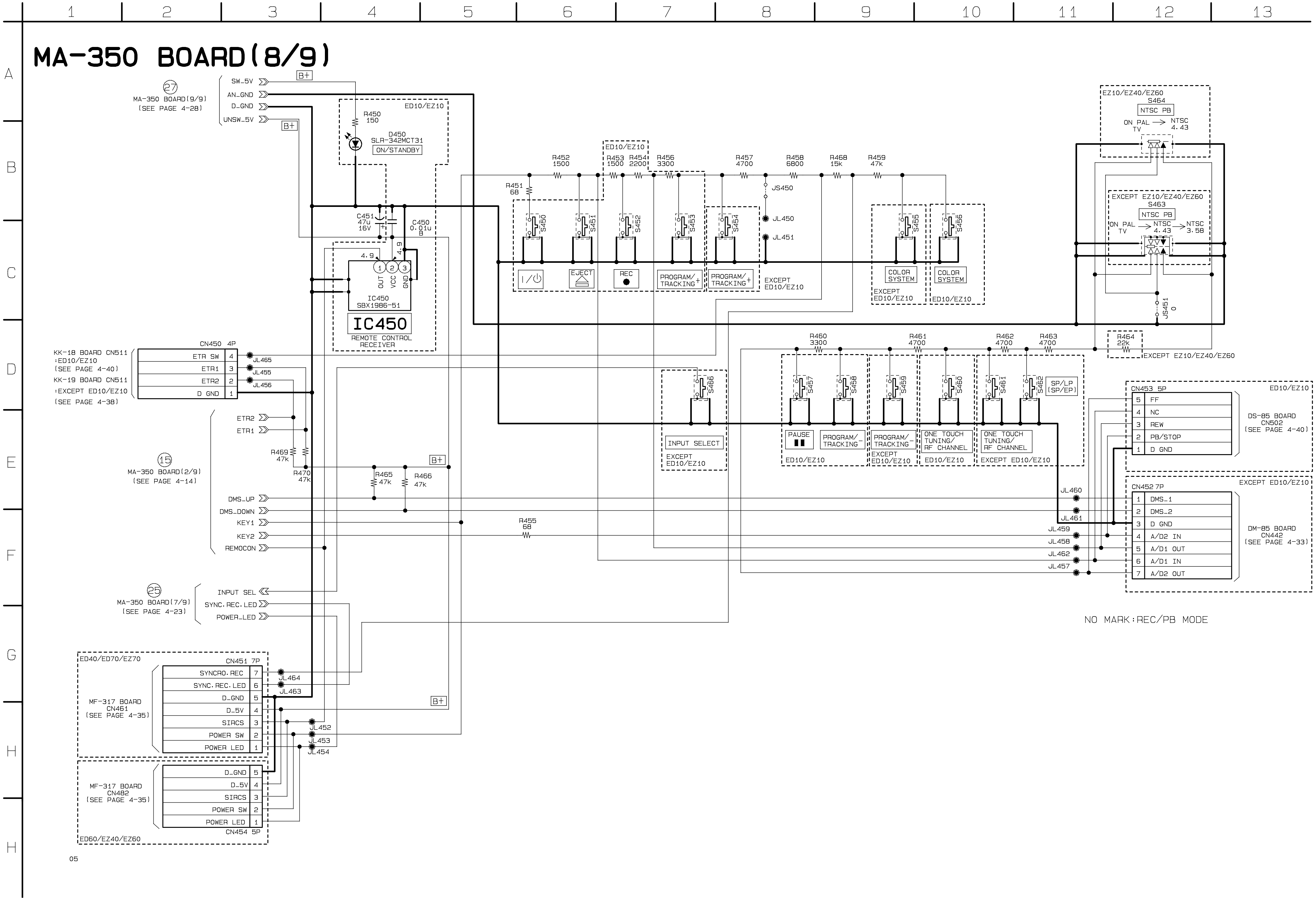
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

MA-350 (FL DRIVE) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.

– Ref. No.: MA-350 board; 1,000 series –


MA-350 BOARD(7/9)
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G
㉕ MA-350 BOARD(8/9) (SEE PAGE 4-25)
SYNC.REC.LED
POWER LED
INPUT SEL
JL428
R432 10k
R426 4700
R429 4700
R425 33k
CL420
⑤ MA-350 BOARD(1/9) (SEE PAGE 4-10)
MESECAM DET
C.KILLER DET
JL429
JL421
R428 470
⑯ MA-350 BOARD(2/9) (SEE PAGE 4-14)
OSD MIX
S_IN
S_OUT
S_CLK
FLD CS
JL422
JL423
JL424
JL425
JL426
R421 1k
R422 1k
R423 1k
R424 1k
IC420 UPD16312GB-3BS
IC420
FL DRIVER
AS/NZ DET/SECAM DET
C.KILLER DET
INPUT SEL
MESECAM DET
D OUT
D IN
VSS
CLK
CS
K1
K2
OSC VSS OSD MIX RR LED POWER LED SYNC.REC.LED VDD G1 G2 G3 G4
2.5 0 0.2 4.9 4.9 -8.3 -8.3 -8.3 -8.3
F37 F36 F35
G5 G6 S16 S15 S14 S13 VEE S12 S11 S10 S9
-8.3 -8.3 -10.1 -0.4 -0.5 -10.1 -10.2 -10.1 -10.1 -2.5 -0.6
F31 F30 F29 F28 F26 F25 F24 F23
K3 K4 VDD 4.9 S1 -1.6 S2 -7.9 S3 -9.8 S4 -9.8 S5 -0.2 S6 -4.1 S7 -4.4 S8 -4.4
F15 F16 F17 F18 F19 F20 F21 F22
ND420 FLUORESCENT INDICATOR TUBE
F- F- G1 G2 G3 G4 G5 G6 NC NC P16 P15 P14 P13 P12 P11 P10 P9 P8 P7 P6 P5 P4 P3 P2 P1 F+ F+
C421 0.1u F
㉖ MA-350 BOARD(9/9) (SEE PAGE 4-28)
UN_5V
D GND
-13V
+F
-F
B+
B-
C422 47u 16V
C423 0.1u F
C424 10u 16V
NO MARK:REC/PB MODE
05

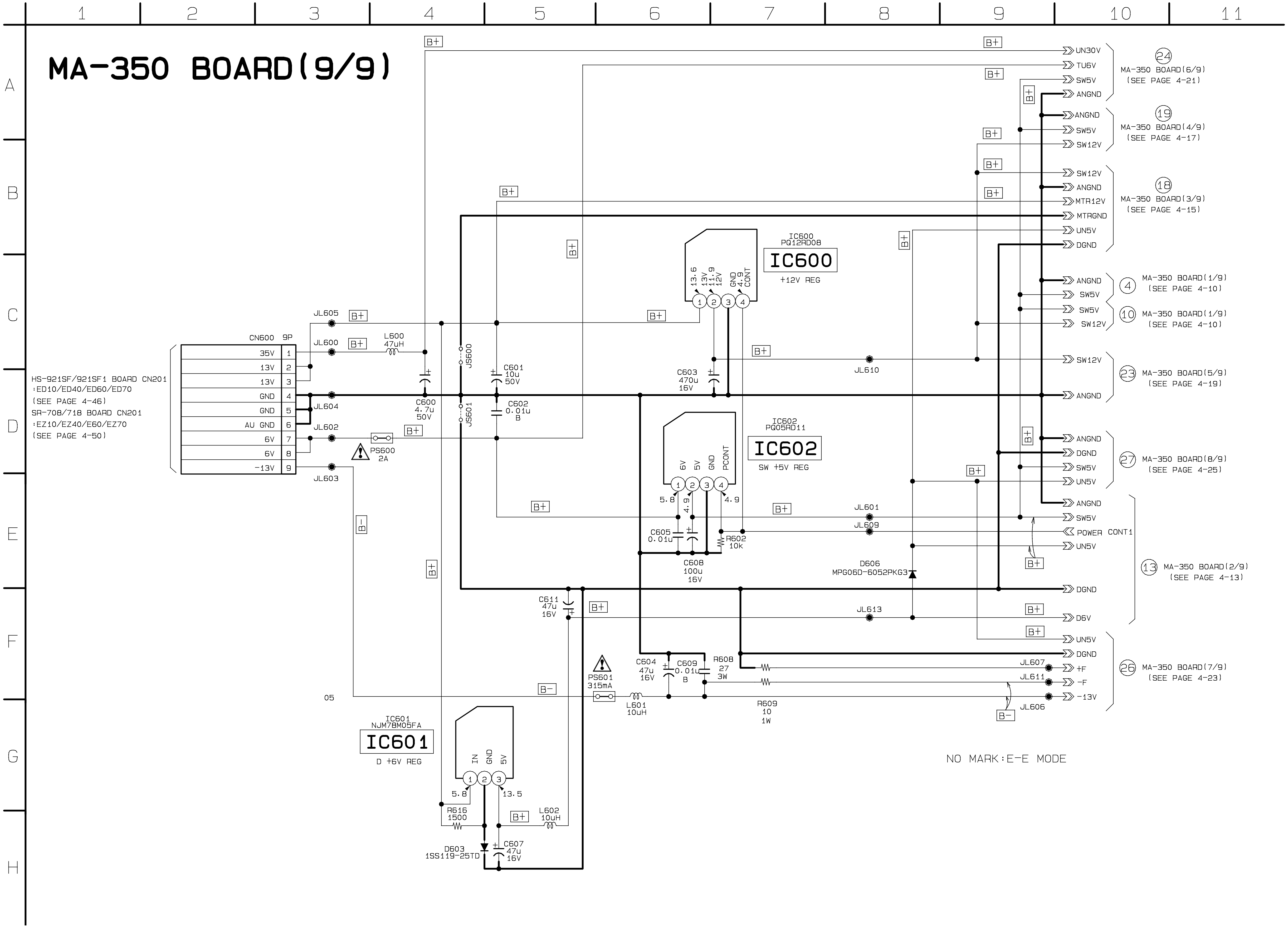
MA-350 (MODE CONTROL) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.
– Ref. No.: MA-350 board; 1,000 series –


MA-350 BOARD(8/9)
27 MA-350 BOARD(9/9) (SEE PAGE 4-28)
SW_5V
AN_GND
D_GND
UNSW_5V
B+
ED10/EZ10
R450 150
D450 SLR-342MCT31
ON/STANDBY
C451 47u 16V
C450 0.01u B
4.9
IC450 SBX1986-51
OUT VCC GND
IC450 REMOTE CONTROL RECEIVER
R451 68
R452 1500
R453 1500
R454 2200
R456 3300
R457 4700
R458 6800
R468 15k
R459 47k
JS450
JL450
JL451
S450 S451 S452 S453 S454 S455 S456
I/⏻
EJECT
REC
PROGRAM/ TRACKING+
EXCEPT ED10/EZ10
COLOR SYSTEM
EZ10/EZ40/EZ60
S464 NTSC PB
ON PAL TV → NTSC 4.43
EXCEPT EZ10/EZ40/EZ60
S463 NTSC PB
ON PAL TV → NTSC 4.43 → NTSC 3.58
JS451 0
R464 22k
R460 3300
R461 4700
R462 4700
R463 4700
S466 S457 S458 S459 S460 S461 S462
SP/LP (SP/EP)
INPUT SELECT
PAUSE
PROGRAM/ TRACKING−
ONE TOUCH TUNING/ RF CHANNEL
EXCEPT ED10/EZ10
KK-18 BOARD CN511 :ED10/EZ10 (SEE PAGE 4-40)
KK-19 BOARD CN511 :EXCEPT ED10/EZ10 (SEE PAGE 4-38)
CN450 4P
ETR SW 4
ETR1 3
ETR2 2
D GND 1
JL465 JL455 JL456
ETR2
ETR1
R469 47k
R470 47k
15 MA-350 BOARD(2/9) (SEE PAGE 4-14)
R465 47k
R466 47k
DMS_UP
DMS_DOWN
KEY1
KEY2
REMOCON
R455 68
25 MA-350 BOARD(7/9) (SEE PAGE 4-23)
INPUT SEL
SYNC.REC.LED
POWER_LED
CN453 5P
5 FF
4 NC
3 REW
2 PB/STOP
1 D GND
DS-85 BOARD CN502 (SEE PAGE 4-40)
CN452 7P
1 DMS_1
2 DMS_2
3 D GND
4 A/D2 IN
5 A/D1 OUT
6 A/D1 IN
7 A/D2 OUT
DM-85 BOARD CN442 (SEE PAGE 4-33)
JL460 JL461 JL459 JL458 JL462 JL457
NO MARK:REC/PB MODE
ED40/ED70/EZ70
CN451 7P
SYNCRO.REC 7
SYNC.REC.LED 6
D_GND 5
D_5V 4
SIRCS 3
POWER SW 2
POWER LED 1
MF-317 BOARD CN461 (SEE PAGE 4-35)
JL464 JL463 JL452 JL453 JL454
MF-317 BOARD CN482 (SEE PAGE 4-35)
D_GND 5
D_5V 4
SIRCS 3
POWER SW 2
POWER LED 1
CN454 5P
ED60/EZ40/EZ60
05

MODE CONTROL
MA-350 (8/9)

MA-350 (POWER SUPPLY) SCHEMATIC DIAGRAM • See page 4-5 for printed wiring board.

– Ref. No.: MA-350 board; 1,000 series –


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
MA-350 BOARD(9/9)
B+
B−
UN30V
TU6V
SW5V
ANGND
24
MA-350 BOARD(6/9)
(SEE PAGE 4-21)
SW12V
19
MA-350 BOARD(4/9)
(SEE PAGE 4-17)
MTR12V
MTRGND
UN5V
DGND
18
MA-350 BOARD(3/9)
(SEE PAGE 4-15)
4
MA-350 BOARD(1/9)
(SEE PAGE 4-10)
10
MA-350 BOARD(1/9)
(SEE PAGE 4-10)
23
MA-350 BOARD(5/9)
(SEE PAGE 4-19)
27
MA-350 BOARD(8/9)
(SEE PAGE 4-25)
POWER CONT1
D6V
13
MA-350 BOARD(2/9)
(SEE PAGE 4-13)
+F
-F
-13V
26
MA-350 BOARD(7/9)
(SEE PAGE 4-23)
IC600
PQ12RD08
IC600
+12V REG
13.6
13V
11.9
12V
GND
4.9
CONT
IC602
PQ05RD11
IC602
SW +5V REG
6V
5V
GND
PCONT
5.8
4.9
4.9
IC601
NJM78M05FA
IC601
D +6V REG
IN
GND
5V
5.8
13.5
CN600 9P
35V
13V
13V
GND
GND
AU GND
6V
6V
-13V
HS-921SF/921SF1 BOARD CN201
:ED10/ED40/ED60/ED70
(SEE PAGE 4-46)
SR-708/718 BOARD CN201
:EZ10/EZ40/E60/EZ70
(SEE PAGE 4-50)
JL605
JL600
JL604
JL602
JL603
JL610
JL601
JL609
JL613
JL607
JL611
JL606
L600
47uH
JS600
JS601
C600
4.7u
50V
C601
10u
50V
C602
0.01u
B
C603
470u
16V
PS600
2A
C605
0.01u
C608
100u
16V
R602
10k
D606
MPG06D-6052PKG3
C611
47u
16V
PS601
315mA
L601
10uH
C604
47u
16V
C609
0.01u
B
R608
27
3W
R609
10
1W
05
R616
1500
L602
10uH
D603
1SS119-25TD
C607
47u
16V
NO MARK:E-E MODE

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

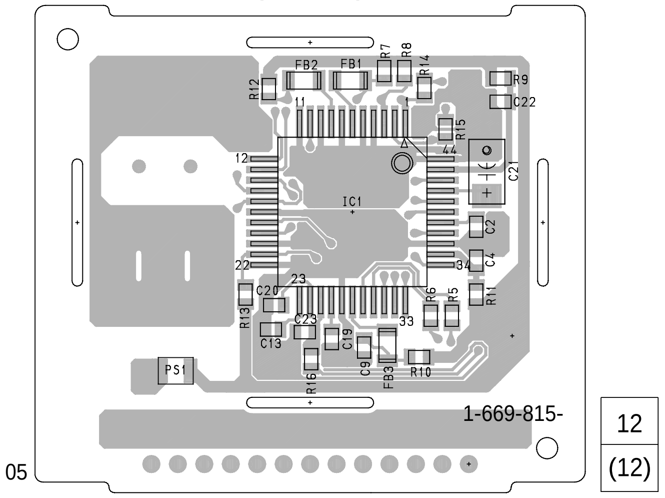
NK-11 (NICAM) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: NK-11 board; 2,000 series –

– SLV-ED70/EZ70: NZ –

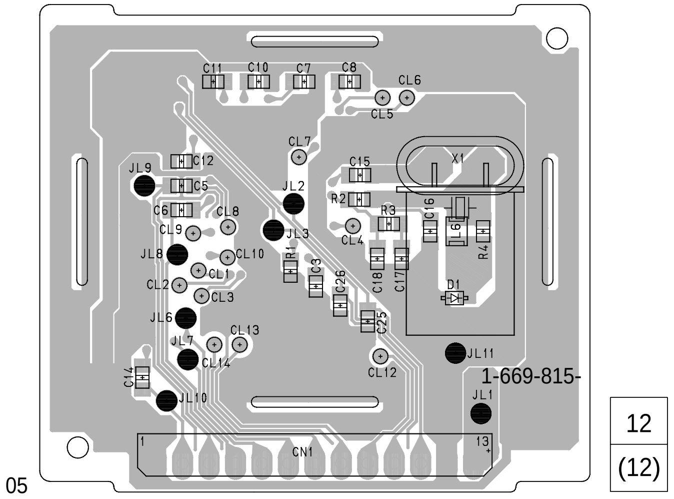
There are few cases that the part isn't mounted in this model is printed on this diagram.

NK-11 BOARD(SIDE A)

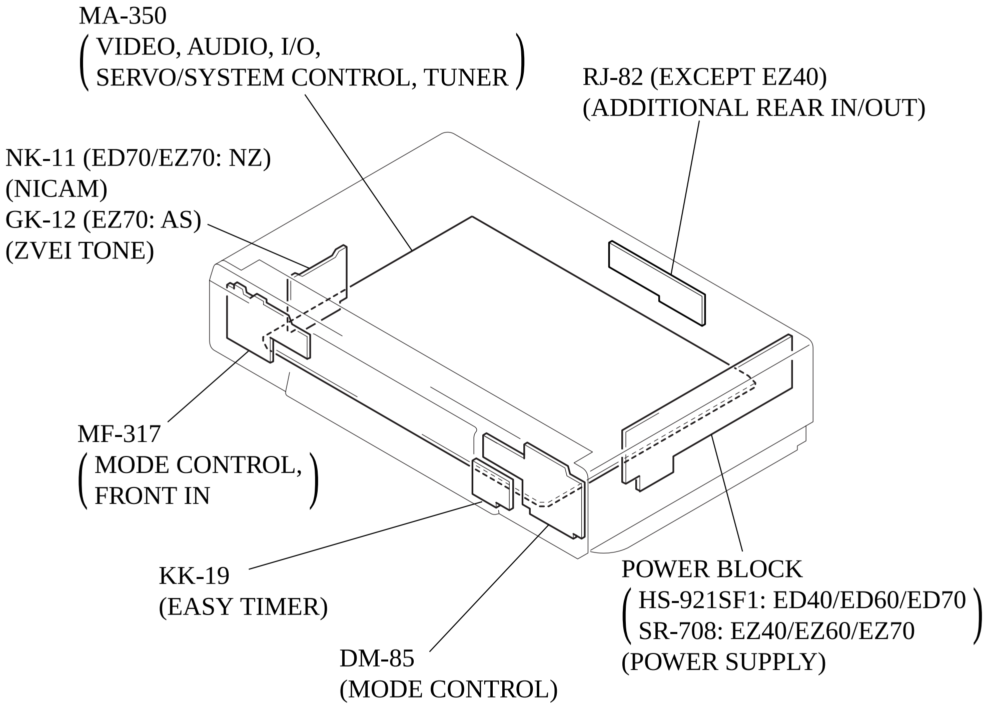


FB2
FB1
R7
R8
R14
R12
R9
C22
R15
C21
IC1
C2
C4
R11
R6
R5
C20
C23
C19
C9
FB3
R10
R13
C13
R16
PS1
1-669-815-
12
(12)
05

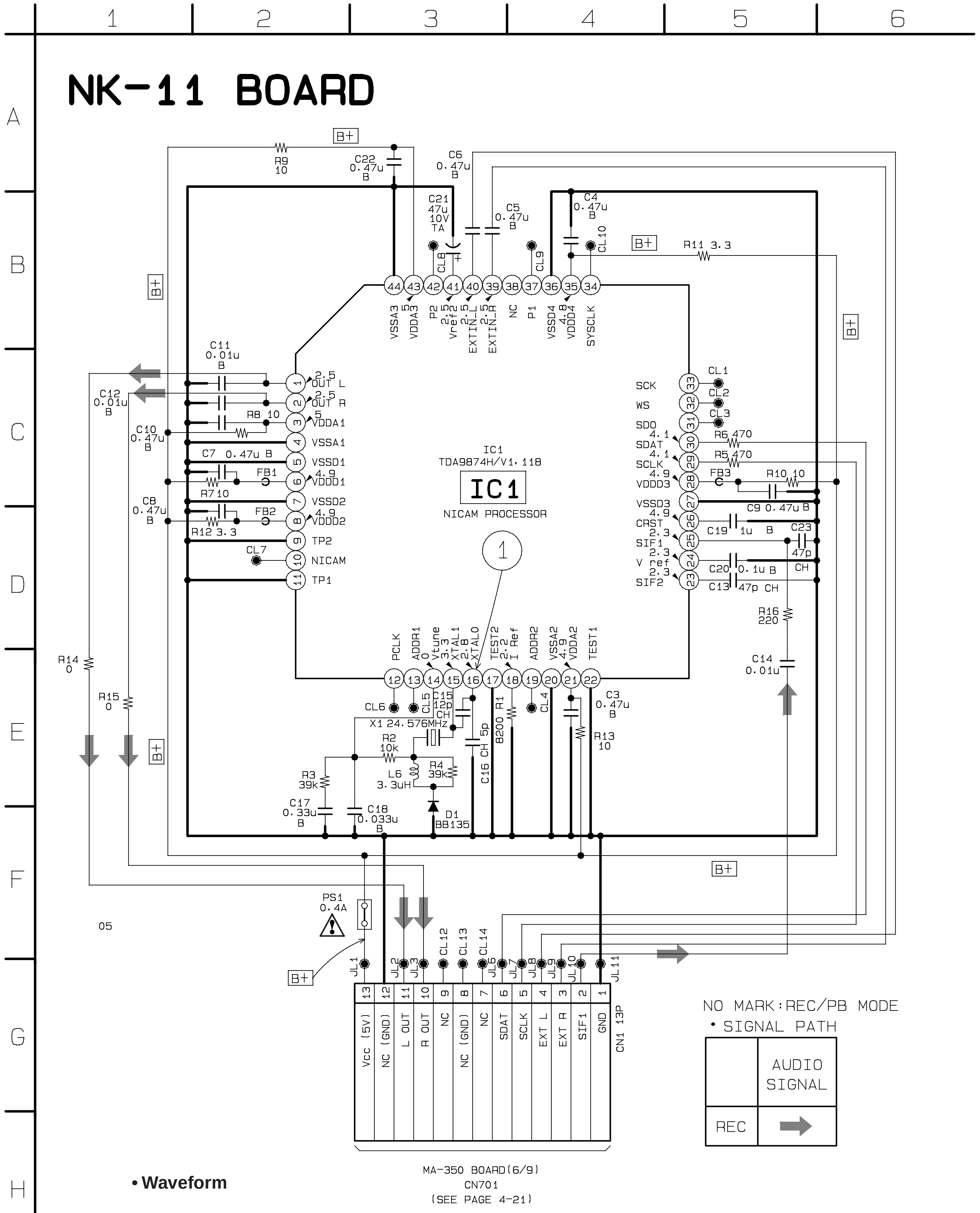
NK-11 BOARD(SIDE B)



C11
C10
C7
C8
CL6
CL5
CL7
JL9
C12
C5
C15
X1
JL2
R2
JL3
R3
C6
CL8
CL9
CL4
C16
L6
JL8
CL10
CL1
CL2
CL3
R4
D1
JL6
CL13
JL7
CL14
C14
JL10
CL12
JL11
JL1
CN1
1-669-815-
12
(12)
05



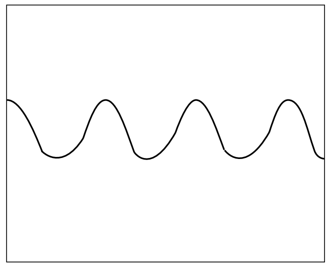
MA-350
(VIDEO, AUDIO, I/O, SERVO/SYSTEM CONTROL, TUNER)
RJ-82 (EXCEPT EZ40)
(ADDITIONAL REAR IN/OUT)
NK-11 (ED70/EZ70: NZ)
(NICAM)
GK-12 (EZ70: AS)
(ZVEI TONE)
MF-317
(MODE CONTROL, FRONT IN)
KK-19
(EASY TIMER)
DM-85
(MODE CONTROL)
POWER BLOCK
(HS-921SF1: ED40/ED60/ED70
SR-708: EZ40/EZ60/EZ70)
(POWER SUPPLY)



1
2
3
4
5
6
A
B
C
D
E
F
G
H
NK-11 BOARD
R9 10
B+
C22 0.47u B
C6 0.47u B
C21 47u 10V TA
C5 0.47u B
C4 0.47u B
CL8
CL9
CL10
R11 3.3
VSSA3
VDDA3 5
P2
Vref2 2.5
EXTIN_L 2.5
EXTIN_R 2.5
NC
P1
VSSD4
VDDD4 4.8
SYSCLK
C11 0.01u B
C12 0.01u B
C10 0.47u B
C8 0.47u B
R8 10
C7 0.47u B
FB1
R7 10
FB2
R12 3.3
CL7
OUT L 2.5
OUT R 2.5
VDDA1 5
VSSA1
VSSD1
VDDD1 4.9
VSSD2
VDDD2 4.9
TP2
NICAM
TP1
IC1
TDA9874H/V1.118
IC1
NICAM PROCESSOR
SCK
WS
SDO
SDAT 4.1
SCLK 4.1
VDDD3 4.9
VSSD3
CRST 4.9
SIF1 2.3
V ref 2.3
SIF2 2.3
CL1
CL2
CL3
R6 470
R5 470
FB3
R10 10
C9 0.47u B
C19 1u B
C23 47p CH
C20 0.1u B
C13 47p CH
R16 220
C14 0.01u
R14 0
R15 0
PCLK
ADDR1 0
Vtune 3.3
XTAL1 2.8
XTAL0 2.8
TEST2
I Ref 2.2
ADDR2
VSSA2
VDDA2 4.9
TEST1
CL6
CL5
C15 12p CH
X1 24.576MHz
R1 8200
CL4
C3 0.47u B
R2 10k
C16 5p CH
R13 10
R3 39k
L6 3.3uH
R4 39k
C17 0.33u B
C18 0.033u B
D1 BB135
PS1 0.4A
05
JL1
JL2
JL3
CL12
CL13
CL14
JL6
JL7
JL8
JL9
JL10
JL11
Vcc (5V)
NC (GND)
L OUT
R OUT
NC
NC (GND)
NC
SDAT
SCLK
EXT L
EXT R
SIF1
GND
CN1 13P
MA-350 BOARD(6/9)
CN701
(SEE PAGE 4-21)
NO MARK:REC/PB MODE
• SIGNAL PATH
AUDIO SIGNAL
REC

• Waveform

❶ IC1 ⑯ REC/PB



740 mVp-p (24.576 MHz)

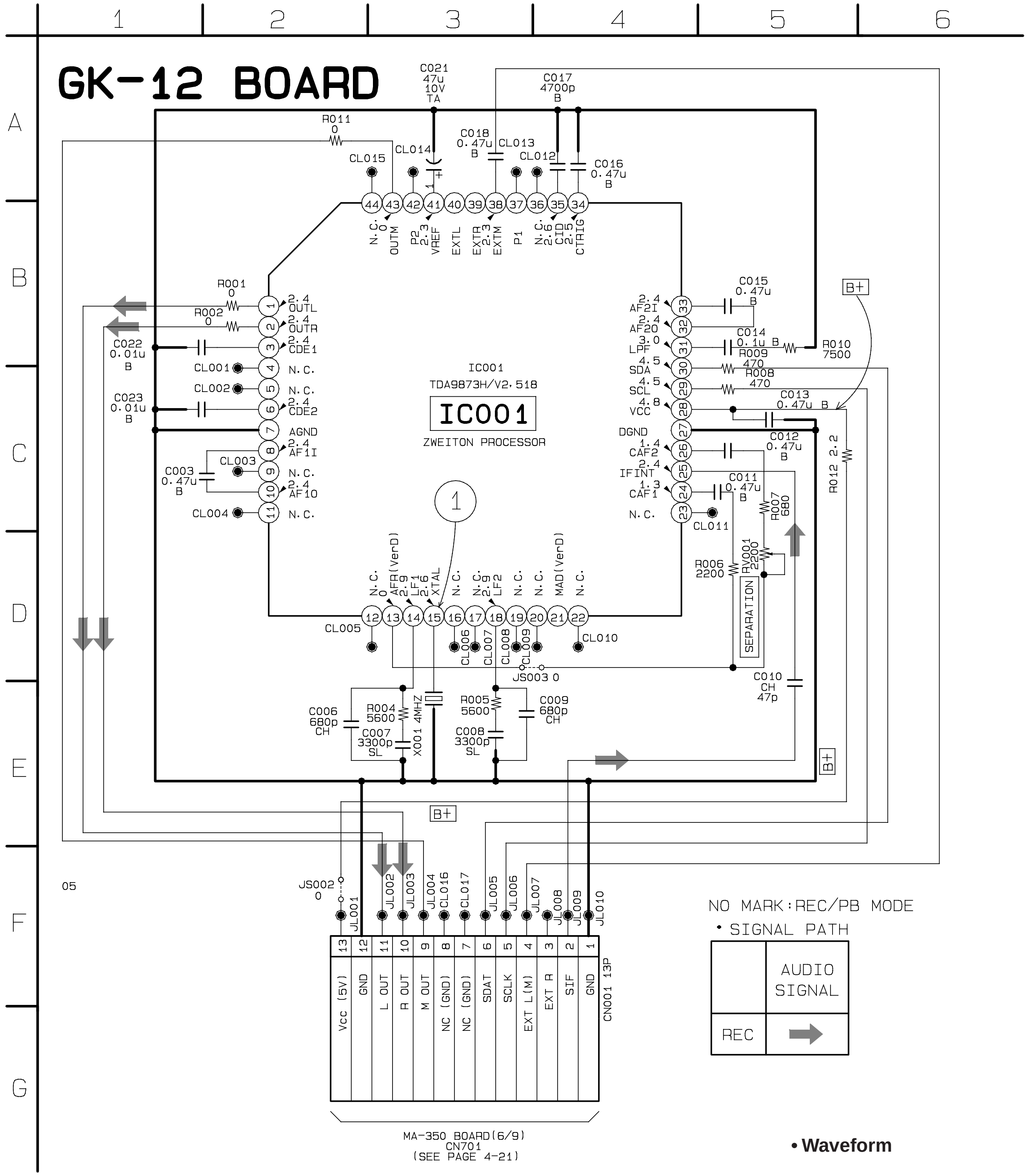
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

GK-12 (ZVEI TONE) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: GK-12 board; 1,000 series –

– SLV-EZ70: AS –

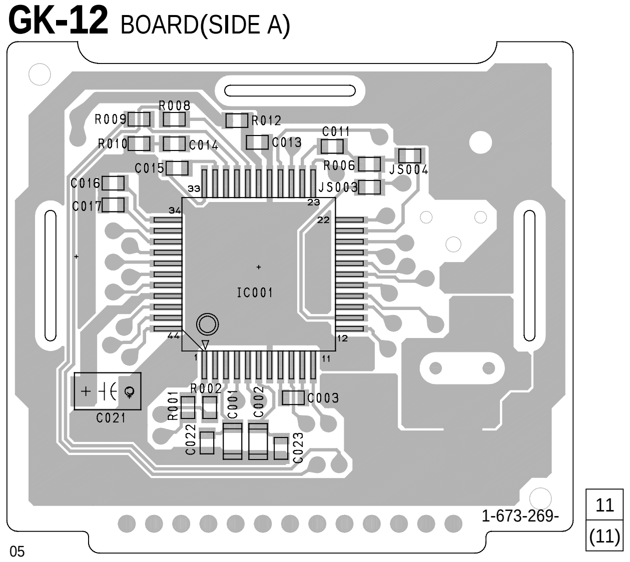
There are few cases that the part isn't mounted in this model is printed on this diagram.

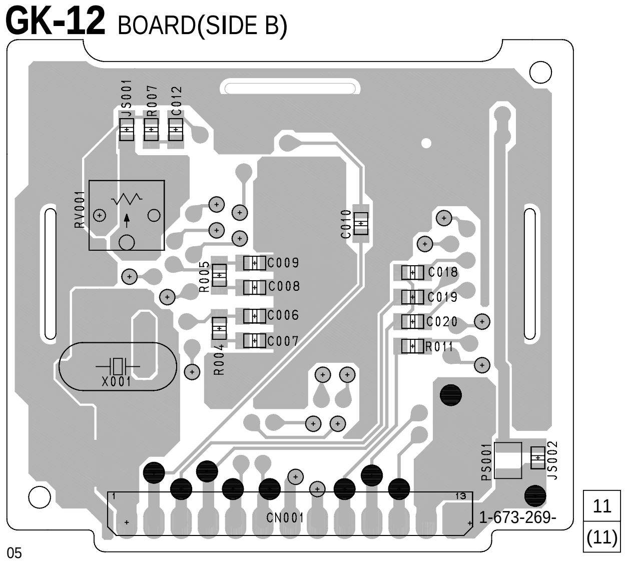

GK-12 BOARD
1
2
3
4
5
6
A
B
C
D
E
F
G
IC001
TDA9873H/V2.518
IC001
ZWEITON PROCESSOR
C021 47u 10V TA
C017 4700p B
R011 0
C018 0.47u B
CL013
CL012
C016 0.47u B
CL014
CL015
N.C.
OUTM
P2
VREF
EXTL
EXTR
EXTM
P1
N.C.
CID
CTRIG
R001 0
R002 0
OUTL
OUTR
CDE1
C022 0.01u B
CL001
CL002
N.C.
N.C.
CDE2
C023 0.01u B
AGND
AF1I
CL003
N.C.
C003 0.47u B
AF1O
CL004
N.C.
AF2I
AF2O
LPF
SDA
SCL
VCC
DGND
CAF2
IFINT
CAF1
N.C.
C015 0.47u B
C014 0.1u B
R010 7500
R009 470
R008 470
C013 0.47u B
C012 0.47u B
R012 2.2
C011 0.47u B
CL011
R007 680
R006 2200
RV001 2200
SEPARATION
B+
N.C.
AFR(VerD)
LF1
XTAL
N.C.
N.C.
LF2
N.C.
N.C.
MAD(VerD)
N.C.
CL005
CL006
CL007
CL008
CL009
CL010
JS003 0
C010 CH 47p
C006 680p CH
R004 5600
C007 3300p SL
X001 4MHz
R005 5600
C009 680p CH
C008 3300p SL
JS002 0
JL001
JL002
JL003
JL004
CL016
CL017
JL005
JL006
JL007
JL008
JL009
JL010
13 Vcc (5V)
12 GND
11 L OUT
10 R OUT
9 M OUT
8 NC (GND)
7 NC (GND)
6 SDAT
5 SCLK
4 EXT L(M)
3 EXT R
2 SIF
1 GND
CN001 13P
MA-350 BOARD(6/9) CN701 (SEE PAGE 4-21)
05
①

NO MARK:REC/PB MODE

• SIGNAL PATH

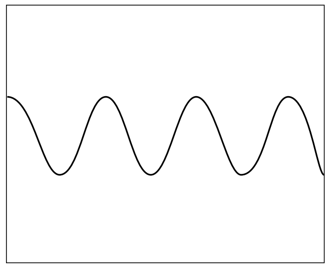
	AUDIO SIGNAL
REC	➡


GK-12 BOARD(SIDE A)
R009
R008
R012
R010
C014
C013
C011
C015
R006
JS003
JS004
C016
C017
33
34
23
22
IC001
44
1
11
12
R001
R002
C001
C002
C003
C021
C022
C023
1-673-269-
11
(11)
05

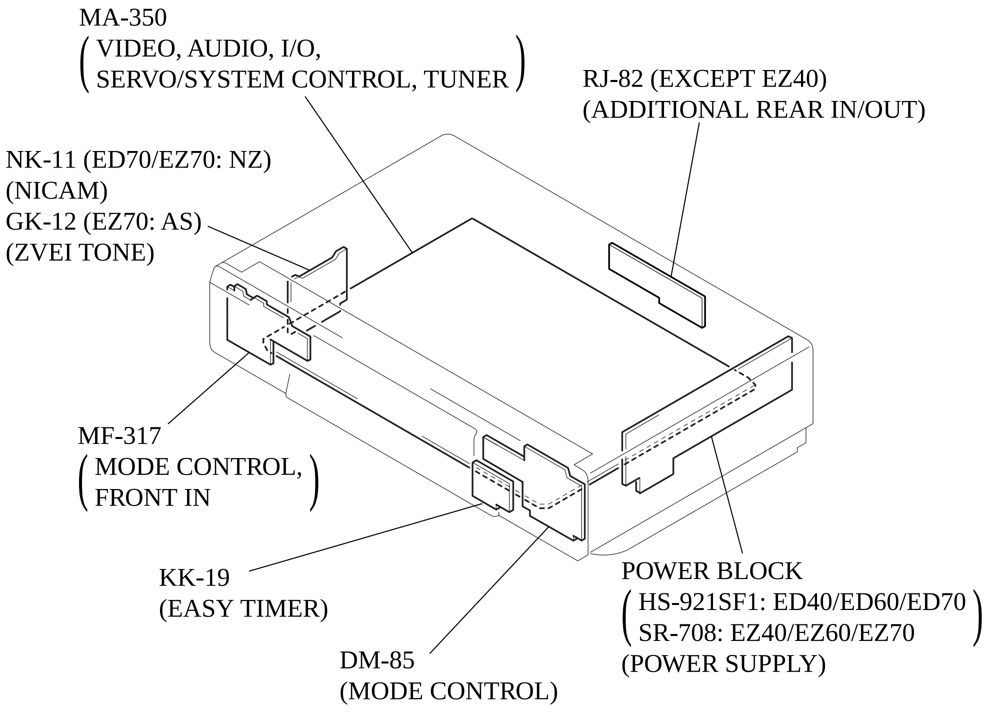

GK-12 BOARD(SIDE B)
JS001
R007
C012
RV001
C010
R005
C009
C008
C006
C007
R004
C018
C019
C020
R011
X001
PS001
JS002
CN001
1
13
1-673-269-
11
(11)
05

• Waveform

❶ IC001 ⑮ REC/PB



148 mVp-p (4 MHz)

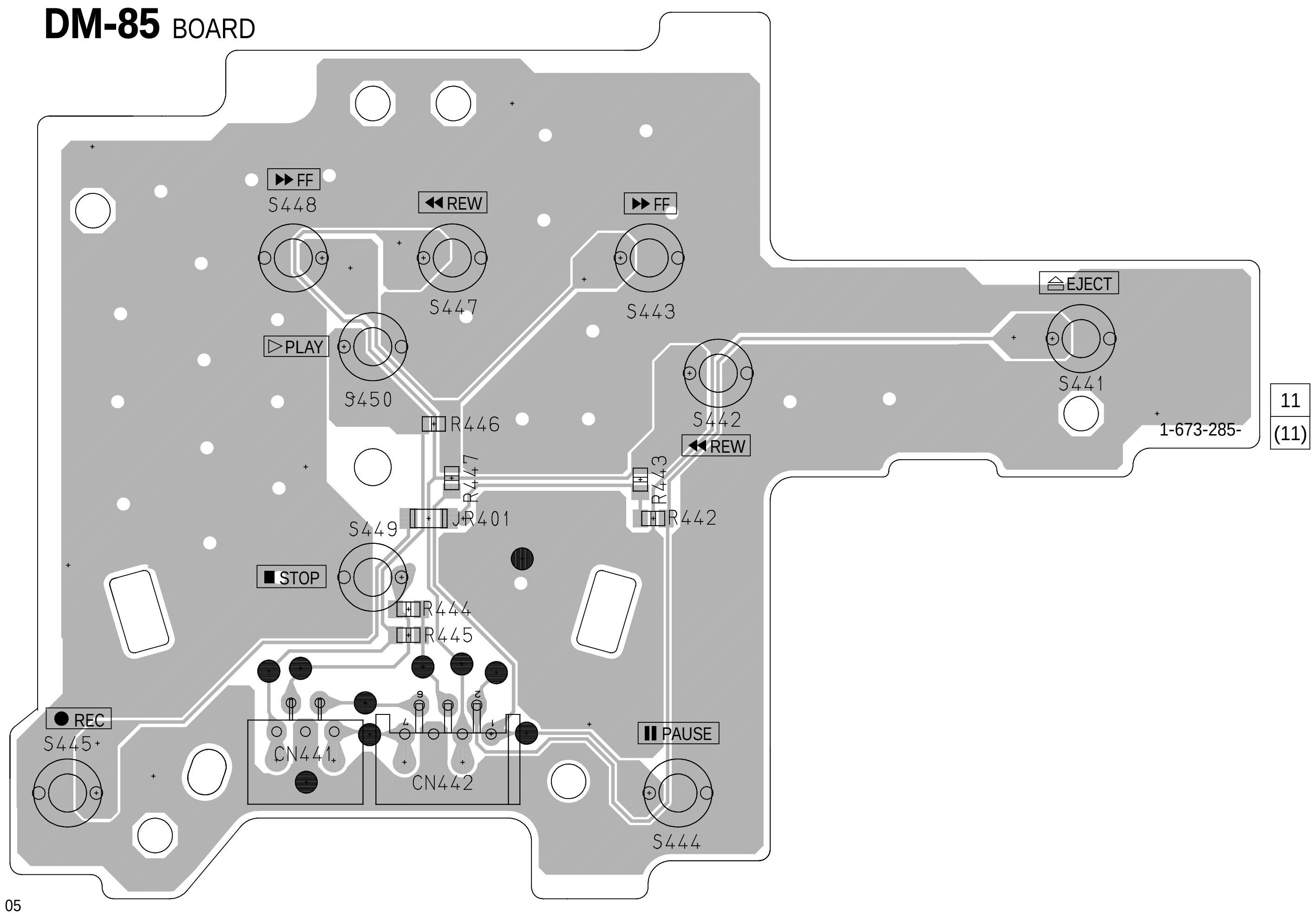

MA-350
(VIDEO, AUDIO, I/O, SERVO/SYSTEM CONTROL, TUNER)
RJ-82 (EXCEPT EZ40)
(ADDITIONAL REAR IN/OUT)
NK-11 (ED70/EZ70: NZ)
(NICAM)
GK-12 (EZ70: AS)
(ZVEI TONE)
MF-317
(MODE CONTROL, FRONT IN)
KK-19
(EASY TIMER)
DM-85
(MODE CONTROL)
POWER BLOCK
(HS-921SF1: ED40/ED60/ED70
SR-708: EZ40/EZ60/EZ70)
(POWER SUPPLY)

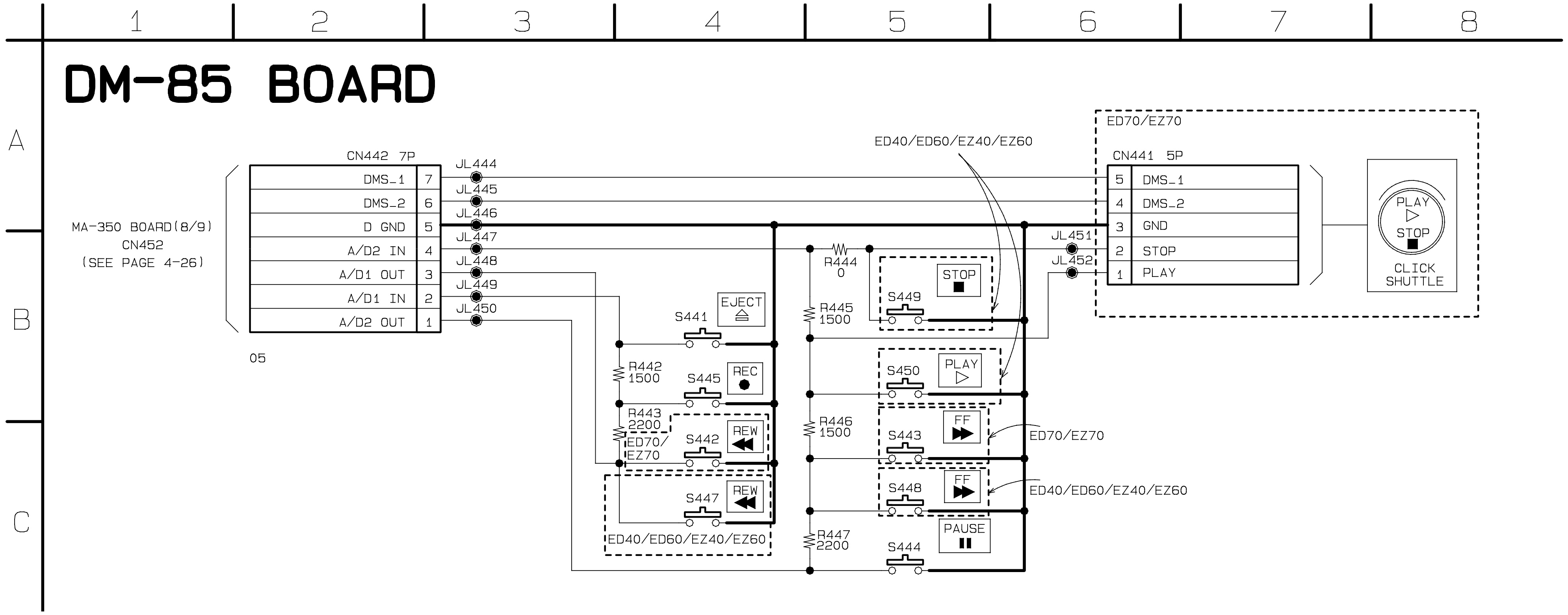
DM-85 (MODE CONTROL) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: DM-85 board; 2,000 series –

There are few cases that the part isn't mounted in this model is printed on this diagram.

– SLV-ED40/ED60/ED70/EZ40/EZ60/EZ70 –


DM-85 BOARD
FF
S448
REW
S447
FF
S443
EJECT
S441
PLAY
S450
S442
R446
REW
R447
R443
JR401
R442
S449
STOP
R444
R445
REC
S445
CN441
CN442
PAUSE
S444
1-673-285-
11
(11)
05

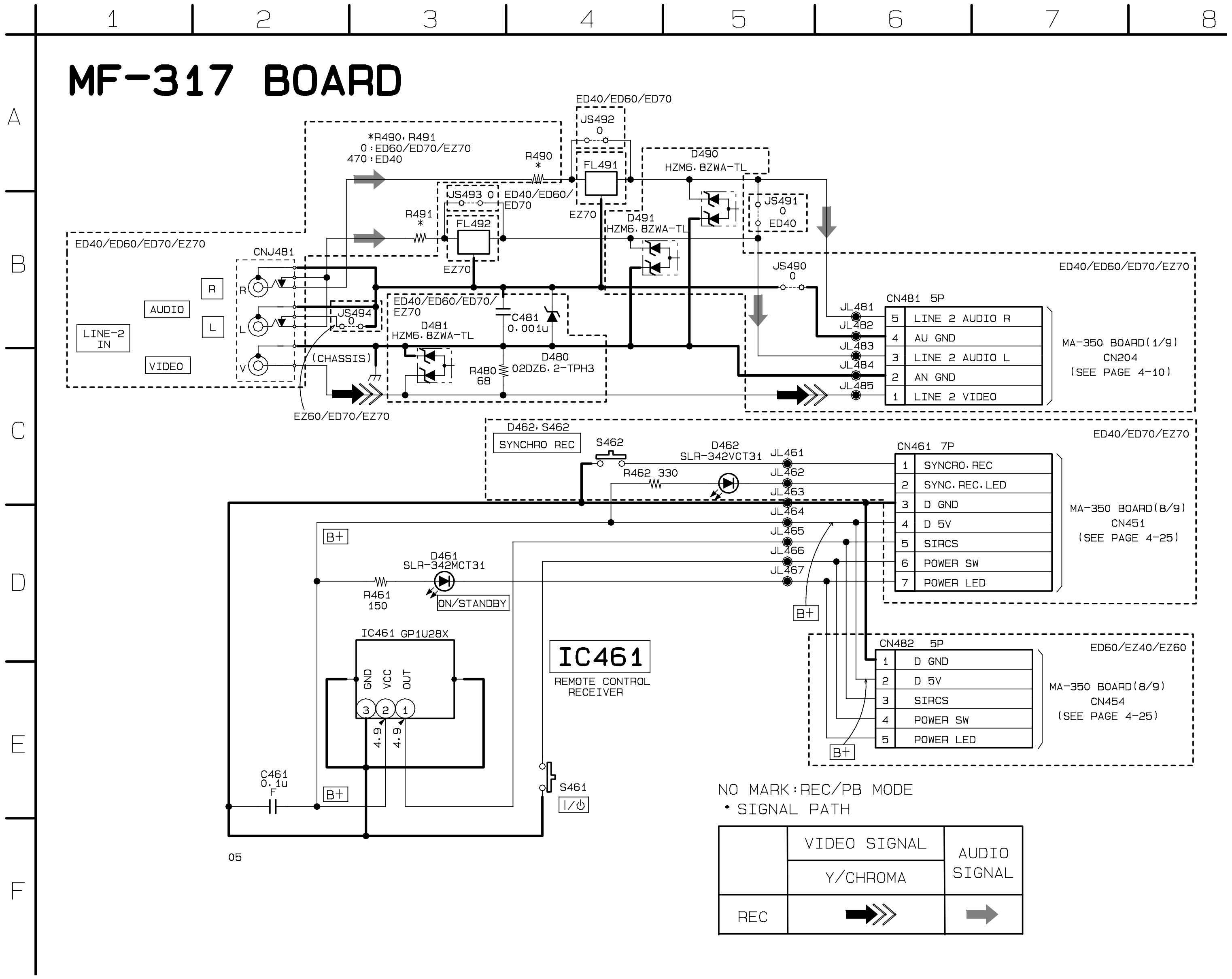

1
2
3
4
5
6
7
8
A
B
C
DM-85 BOARD
MA-350 BOARD(8/9)
CN452
(SEE PAGE 4-26)
CN442 7P
DMS_1 7
DMS_2 6
D GND 5
A/D2 IN 4
A/D1 OUT 3
A/D1 IN 2
A/D2 OUT 1
05
JL444
JL445
JL446
JL447
JL448
JL449
JL450
S441
EJECT
R442
1500
S445
REC
R443
2200
ED70/EZ70
S442
REW
S447
REW
ED40/ED60/EZ40/EZ60
R444
0
R445
1500
R446
1500
R447
2200
S449
STOP
S450
PLAY
S443
FF
S448
FF
S444
PAUSE
ED40/ED60/EZ40/EZ60
ED70/EZ70
ED40/ED60/EZ40/EZ60
JL451
JL452
ED70/EZ70
CN441 5P
5 DMS_1
4 DMS_2
3 GND
2 STOP
1 PLAY
PLAY
STOP
CLICK
SHUTTLE

MF-317 (MODE CONTROL, FRONT IN) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

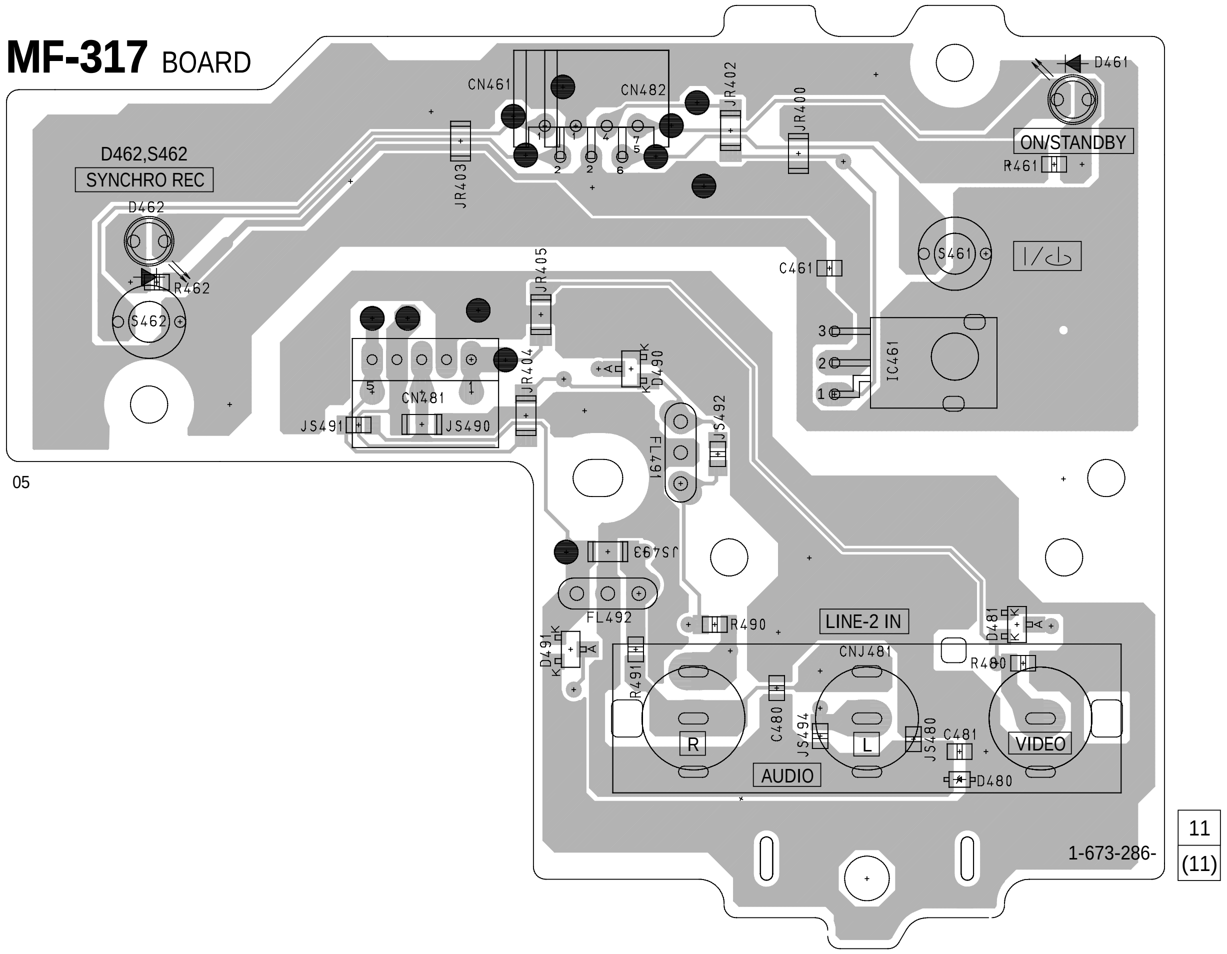
– Ref. No.: MF-317 board; 2,000 series –

There are few cases that the part isn't mounted in this model is printed on this diagram.

– SLV-ED40/ED60/ED70/EZ40/EZ60/EZ70 –


1
2
3
4
5
6
7
8
A
B
C
D
E
F
MF-317 BOARD
*R490, R491
0 : ED60/ED70/EZ70
470 : ED40
ED40/ED60/ED70
JS492 0
R490 *
FL491
D490 HZM6.8ZWA-TL
JS493 0
ED40/ED60/ED70
R491 *
FL492
EZ70
D491 HZM6.8ZWA-TL
JS491 0 ED40
JS490 0
ED40/ED60/ED70/EZ70
CNJ481
AUDIO
R
L
LINE-2 IN
VIDEO
V
JS494 0
(CHASSIS)
ED40/ED60/ED70/EZ70
D481 HZM6.8ZWA-TL
C481 0.001u
D480 02DZ6.2-TPH3
R480 68
EZ60/ED70/EZ70
JL481
JL482
JL483
JL484
JL485
CN481 5P
5 LINE 2 AUDIO R
4 AU GND
3 LINE 2 AUDIO L
2 AN GND
1 LINE 2 VIDEO
MA-350 BOARD (1/9) CN204 (SEE PAGE 4-10)
D462, S462
SYNCHRO REC
S462
D462 SLR-342VCT31
R462 330
JL461
JL462
JL463
JL464
JL465
JL466
JL467
ED40/ED70/EZ70
CN461 7P
1 SYNCRO.REC
2 SYNC.REC.LED
3 D GND
4 D 5V
5 SIRCS
6 POWER SW
7 POWER LED
MA-350 BOARD (8/9) CN451 (SEE PAGE 4-25)
B+
D461 SLR-342MCT31
R461 150
ON/STANDBY
IC461 GP1U28X
GND
VCC
OUT
3
2
1
4.9
4.9
IC461
REMOTE CONTROL RECEIVER
ED60/EZ40/EZ60
CN482 5P
1 D GND
2 D 5V
3 SIRCS
4 POWER SW
5 POWER LED
MA-350 BOARD (8/9) CN454 (SEE PAGE 4-25)
C461 0.1u F
S461
I/⏻
05
NO MARK : REC/PB MODE
• SIGNAL PATH

	VIDEO SIGNAL	AUDIO SIGNAL
	Y/CHROMA	
REC	➡》	➡

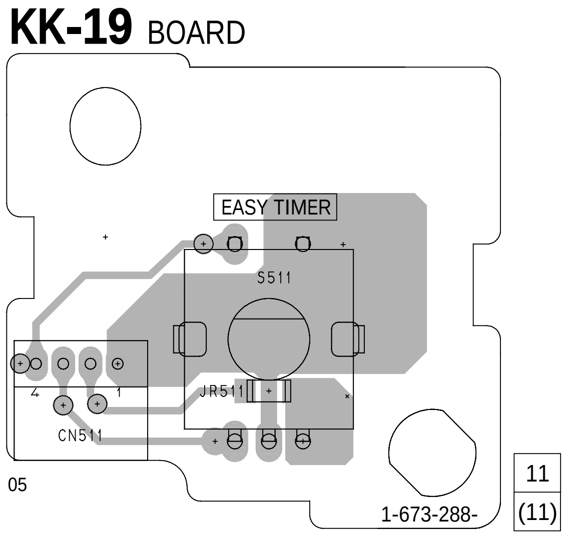

MF-317 BOARD
CN461
CN482
JR402
JR400
JR403
D461
ON/STANDBY
R461
D462,S462
SYNCHRO REC
D462
R462
S462
S461
I/⏻
C461
JR405
JR404
CN481
JS491
JS490
D490
JS492
FL491
IC461
JS493
FL492
R490
LINE-2 IN
D491
R491
CNJ481
C480
JS494
JS480
C481
D481
R480
R
L
VIDEO
AUDIO
D480
05
1-673-286-
11
(11)

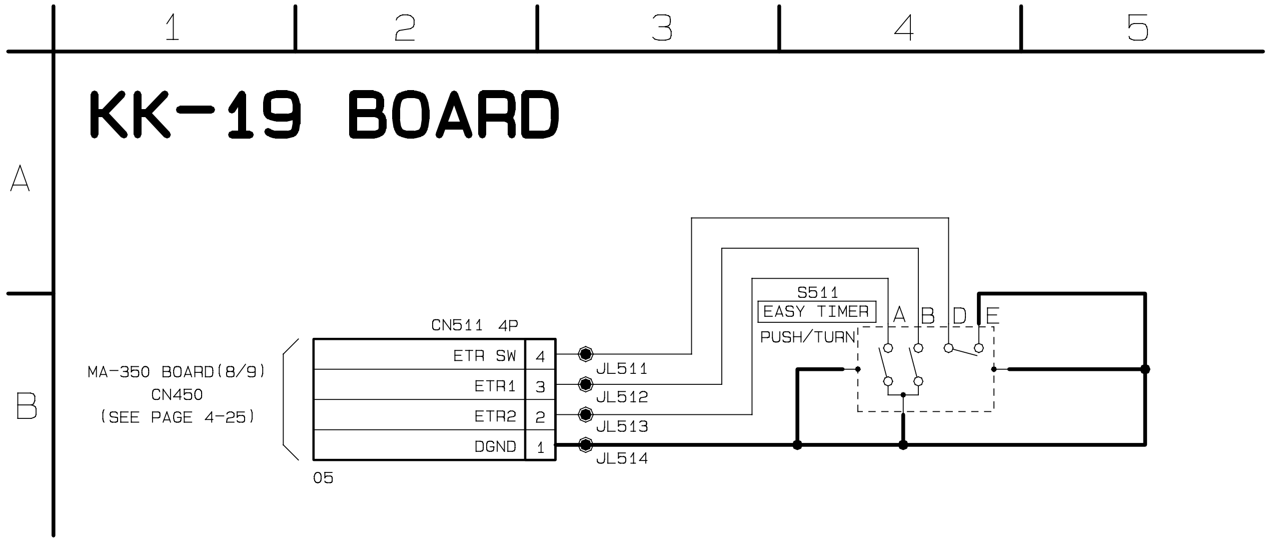
KK-19 (EASY TIMER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

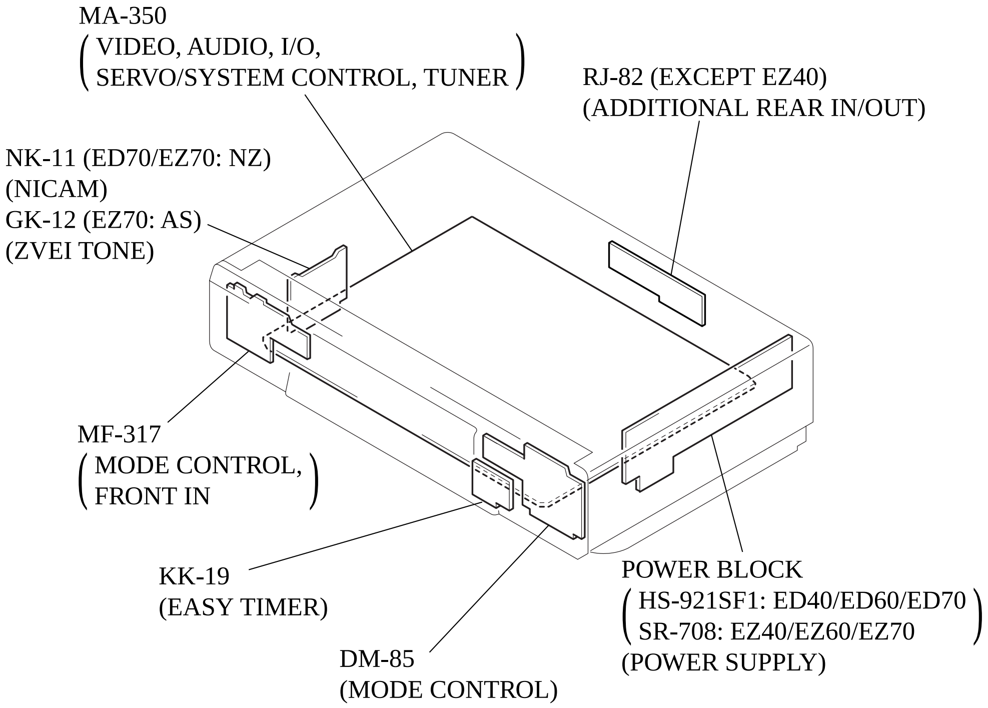
– Ref. No.: KK-19 board; 2,000 series –

– SLV-ED40/ED60/ED70/EZ40/EZ60/EZ70 –

There are few cases that the part isn't mounted in this model is printed on this diagram.


KK-19 BOARD
EASY TIMER
S511
JR511
CN511
4
1
05
1-673-288-
11
(11)


1
2
3
4
5
A
B
KK-19 BOARD
MA-350 BOARD(8/9)
CN450
(SEE PAGE 4-25)
CN511 4P
ETR SW 4
ETR1 3
ETR2 2
DGND 1
05
JL511
JL512
JL513
JL514
S511
EASY TIMER
PUSH/TURN
A
B
D
E

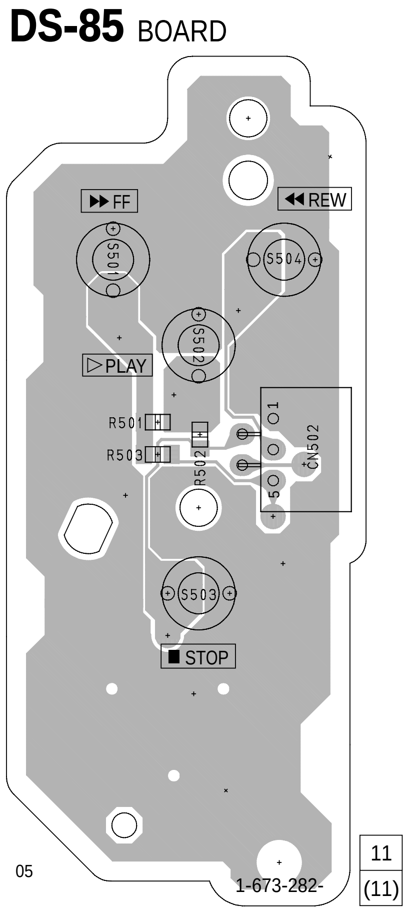

MA-350
(VIDEO, AUDIO, I/O, SERVO/SYSTEM CONTROL, TUNER)
RJ-82 (EXCEPT EZ40)
(ADDITIONAL REAR IN/OUT)
NK-11 (ED70/EZ70: NZ)
(NICAM)
GK-12 (EZ70: AS)
(ZVEI TONE)
MF-317
(MODE CONTROL, FRONT IN)
KK-19
(EASY TIMER)
DM-85
(MODE CONTROL)
POWER BLOCK
(HS-921SF1: ED40/ED60/ED70
SR-708: EZ40/EZ60/EZ70)
(POWER SUPPLY)

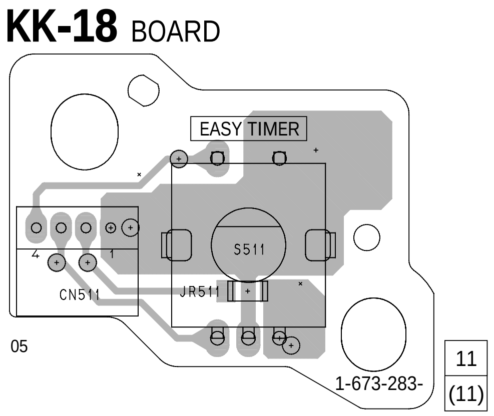
DS-85 (MODE CONTROL), KK-18 (EASY TIMER) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

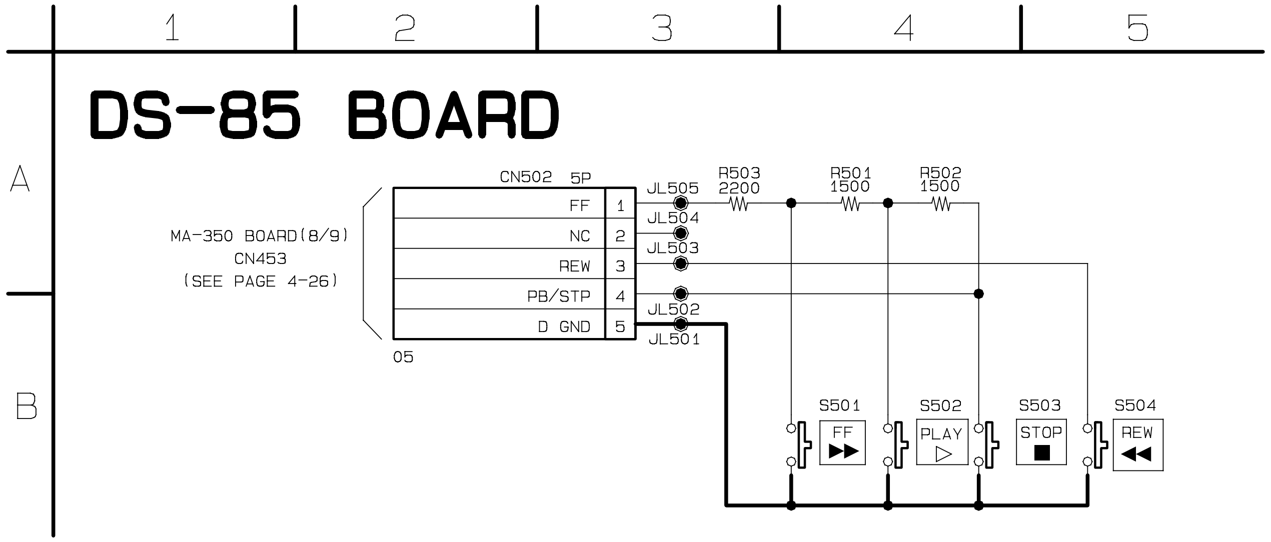
– Ref. No.: DS-85 Board, KK-18 board; 1,000 series –

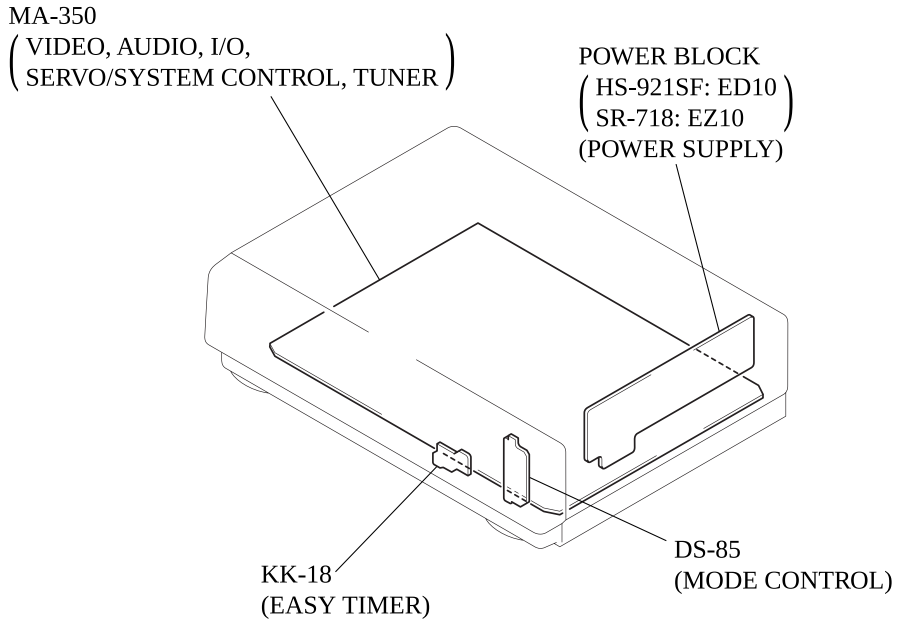
– SLV-ED10/EZ10 –

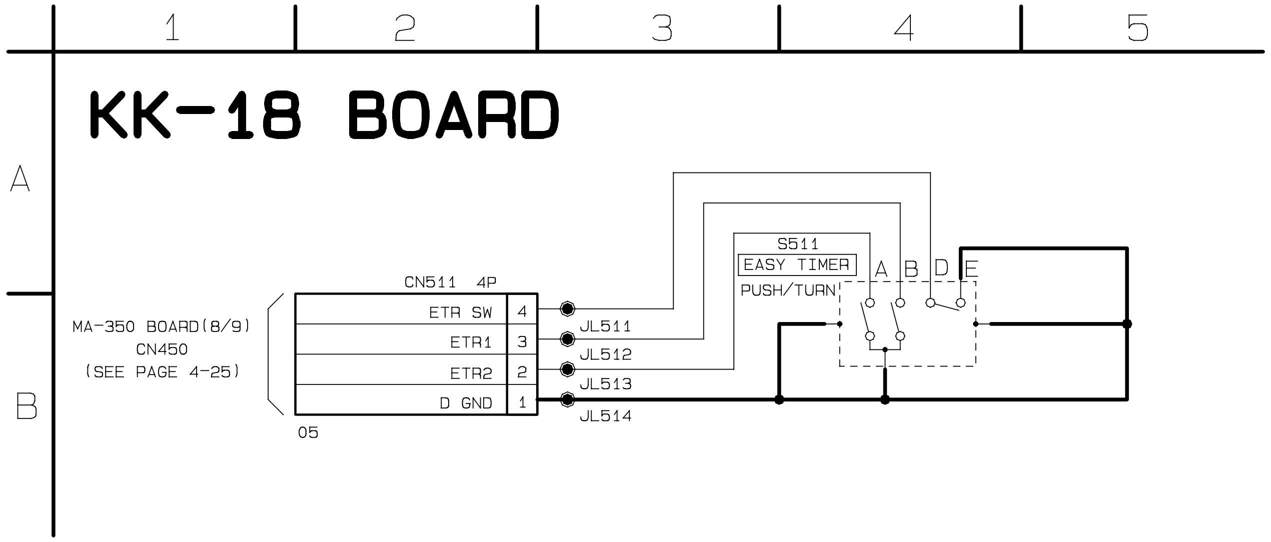
There are few cases that the part isn't mounted in this model is printed on this diagram.


DS-85 BOARD
FF
REW
S501
S504
S502
PLAY
R501
R503
R502
CN502
1
5
S503
STOP
05
1-673-282-
11
(11)


KK-18 BOARD
EASY TIMER
4
1
S511
CN511
JR511
05
1-673-283-
11
(11)


1
2
3
4
5
A
B
DS-85 BOARD
MA-350 BOARD(8/9)
CN453
(SEE PAGE 4-26)
CN502 5P
FF 1
NC 2
REW 3
PB/STP 4
D GND 5
05
JL505
JL504
JL503
JL502
JL501
R503
2200
R501
1500
R502
1500
S501
FF
S502
PLAY
S503
STOP
S504
REW


MA-350
VIDEO, AUDIO, I/O,
SERVO/SYSTEM CONTROL, TUNER
POWER BLOCK
HS-921SF: ED10
SR-718: EZ10
(POWER SUPPLY)
KK-18
(EASY TIMER)
DS-85
(MODE CONTROL)

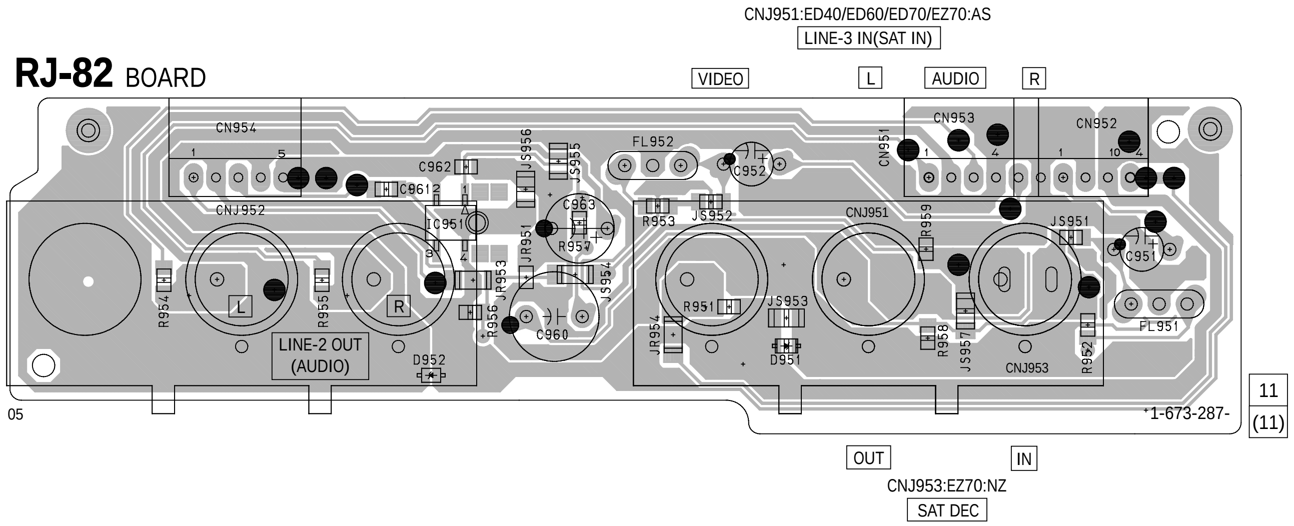

1
2
3
4
5
A
B
KK-18 BOARD
MA-350 BOARD(8/9)
CN450
(SEE PAGE 4-25)
CN511 4P
ETR SW 4
ETR1 3
ETR2 2
D GND 1
05
JL511
JL512
JL513
JL514
S511
EASY TIMER
PUSH/TURN
A
B
D
E

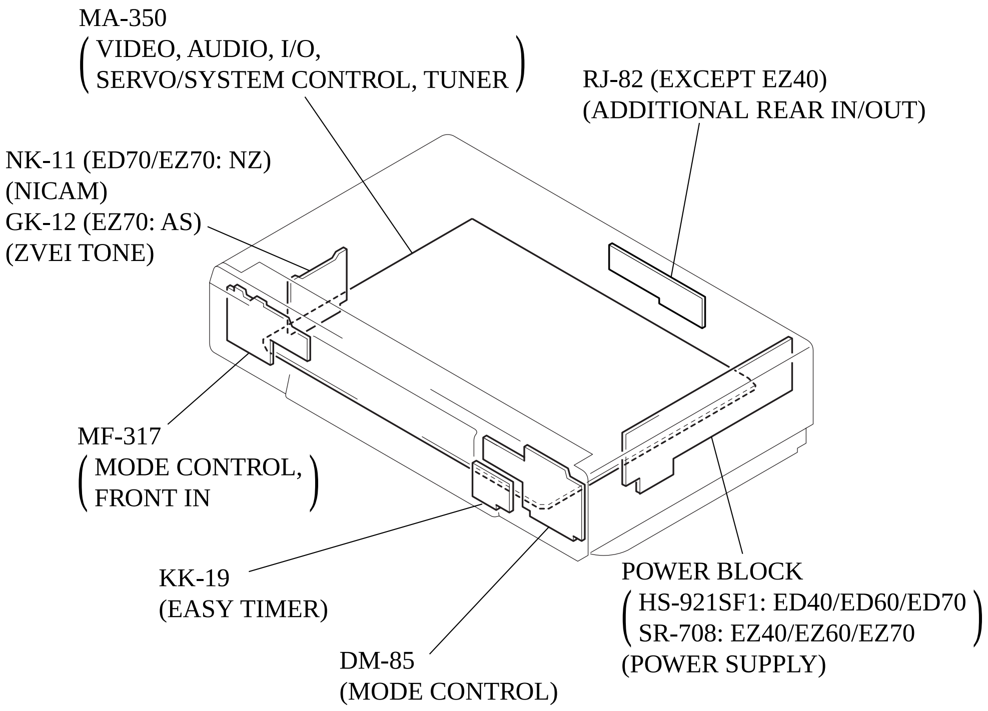
RJ-82 (ADDITIONAL REAR IN/OUT) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

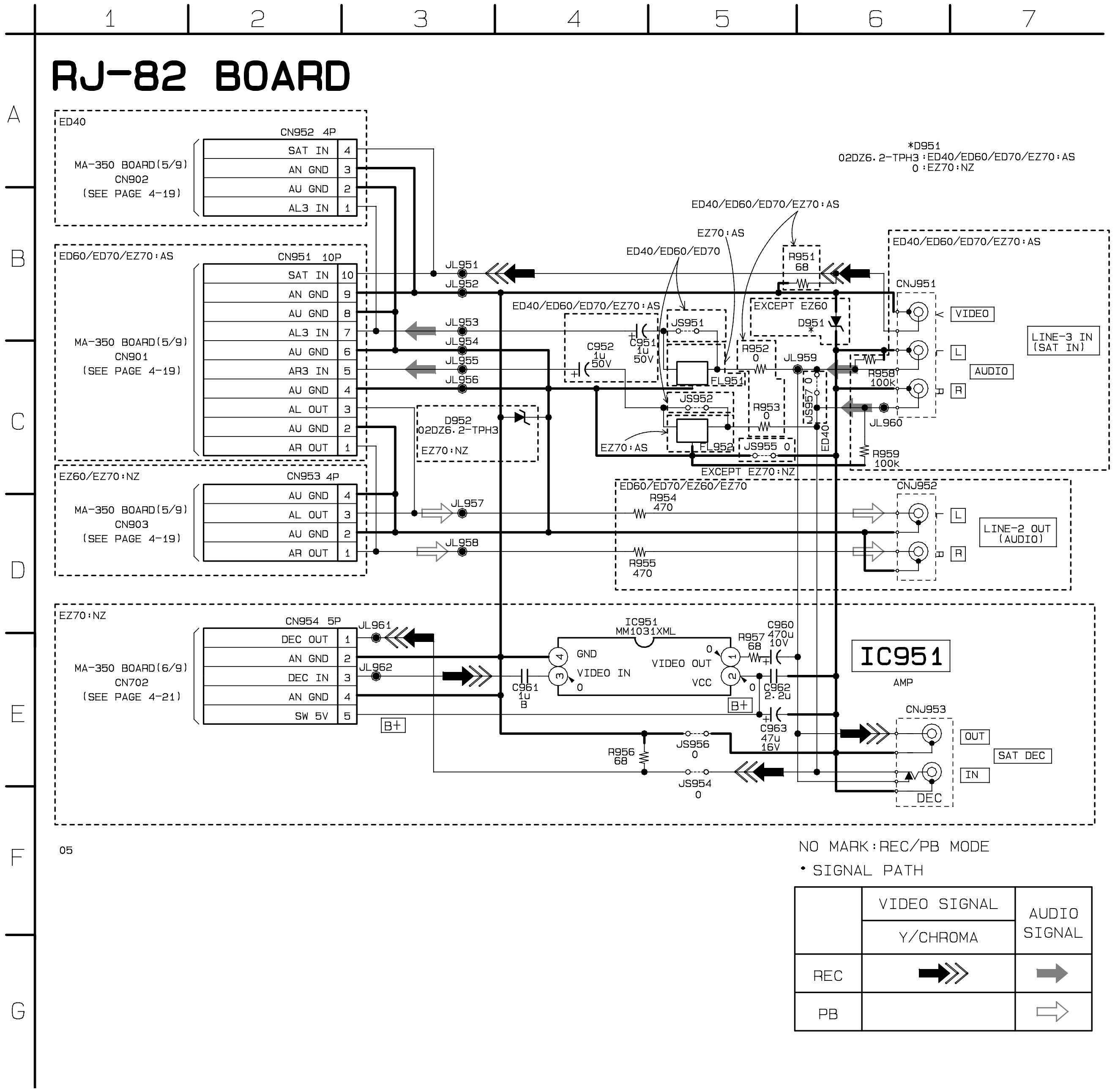
– Ref. No.: RJ-82 Board board; 1,000 series –

– SLV-ED40/ED60/ED70/EZ60/EZ70 –

There are few cases that the part isn't mounted in this model is printed on this diagram.


CNJ951:ED40/ED60/ED70/EZ70:AS
LINE-3 IN(SAT IN)
RJ-82 BOARD
VIDEO
L
AUDIO
R
CN954
CN953
CN952
FL952
CNJ952
C962
C961
IC951
C963
R957
C960
R953
JS952
CNJ951
JS951
C951
FL951
R954
R955
LINE-2 OUT (AUDIO)
D952
R951
JS953
D951
JR954
R958
JS957
CNJ953
R952
R959
JS956
JS955
JR951
JR953
R956
JS954
05
*1-673-287-
11
(11)
OUT
IN
CNJ953:EZ70:NZ
SAT DEC

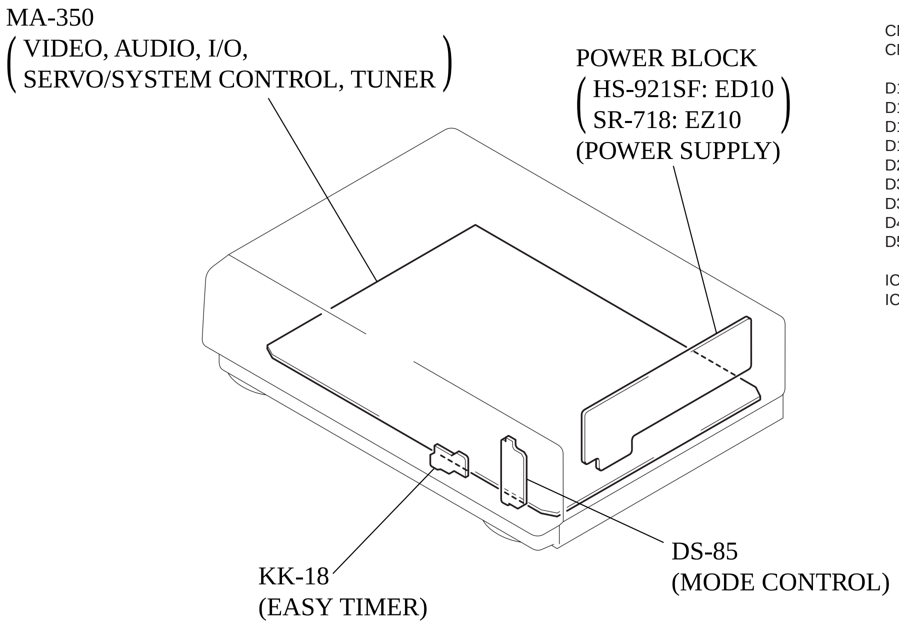

MA-350
(VIDEO, AUDIO, I/O, SERVO/SYSTEM CONTROL, TUNER)
RJ-82 (EXCEPT EZ40)
(ADDITIONAL REAR IN/OUT)
NK-11 (ED70/EZ70: NZ)
(NICAM)
GK-12 (EZ70: AS)
(ZVEI TONE)
MF-317
(MODE CONTROL, FRONT IN)
KK-19
(EASY TIMER)
DM-85
(MODE CONTROL)
POWER BLOCK
(HS-921SF1: ED40/ED60/ED70
SR-708: EZ40/EZ60/EZ70)
(POWER SUPPLY)


1
2
3
4
5
6
7
A
B
C
D
E
F
G
RJ-82 BOARD
ED40
MA-350 BOARD(5/9) CN902 (SEE PAGE 4-19)
CN952 4P
SAT IN
AN GND
AU GND
AL3 IN
*D951
02DZ6.2-TPH3:ED40/ED60/ED70/EZ70:AS
0:EZ70:NZ
ED40/ED60/ED70/EZ70:AS
EZ70:AS
ED40/ED60/ED70
ED60/ED70/EZ70:AS
MA-350 BOARD(5/9) CN901 (SEE PAGE 4-19)
CN951 10P
SAT IN
AN GND
AU GND
AL3 IN
AU GND
AR3 IN
AU GND
AL OUT
AU GND
AR OUT
JL951
JL952
JL953
JL954
JL955
JL956
ED40/ED60/ED70/EZ70:AS
JS951
EXCEPT EZ60
D951
R951 68
CNJ951
VIDEO
LINE-3 IN (SAT IN)
AUDIO
L
R
C952 1u 50V
C951 1u 50V
R952 0
JL959
R958 100K
FL951
JS952
R953 0
JL960
D952 02DZ6.2-TPH3
EZ70:NZ
EZ70:AS
FL952
JS955 0
JS957 0
ED40
R959 100K
EXCEPT EZ70:NZ
EZ60/EZ70:NZ
MA-350 BOARD(5/9) CN903 (SEE PAGE 4-19)
CN953 4P
AU GND
AL OUT
AU GND
AR OUT
JL957
JL958
ED60/ED70/EZ60/EZ70
R954 470
R955 470
CNJ952
LINE-2 OUT (AUDIO)
EZ70:NZ
MA-350 BOARD(6/9) CN702 (SEE PAGE 4-21)
CN954 5P
DEC OUT
AN GND
DEC IN
AN GND
SW 5V
JL961
JL962
B+
IC951 MM1031XML
GND
VIDEO IN
VIDEO OUT
VCC
C961 1u B
R957 68
C960 470u 10V
C962 2.2u
C963 47u 16V
IC951
AMP
R956 68
JS956 0
JS954 0
CNJ953
OUT
IN
SAT DEC
DEC
05
NO MARK:REC/PB MODE
• SIGNAL PATH
VIDEO SIGNAL
Y/CHROMA
AUDIO SIGNAL
REC
PB

HS-921SF/921SF1 (POWER SUPPLY) PRINTED WIRING BOARD

– Ref. No.: HS-921SF/921SF1 board; 3,000 series –

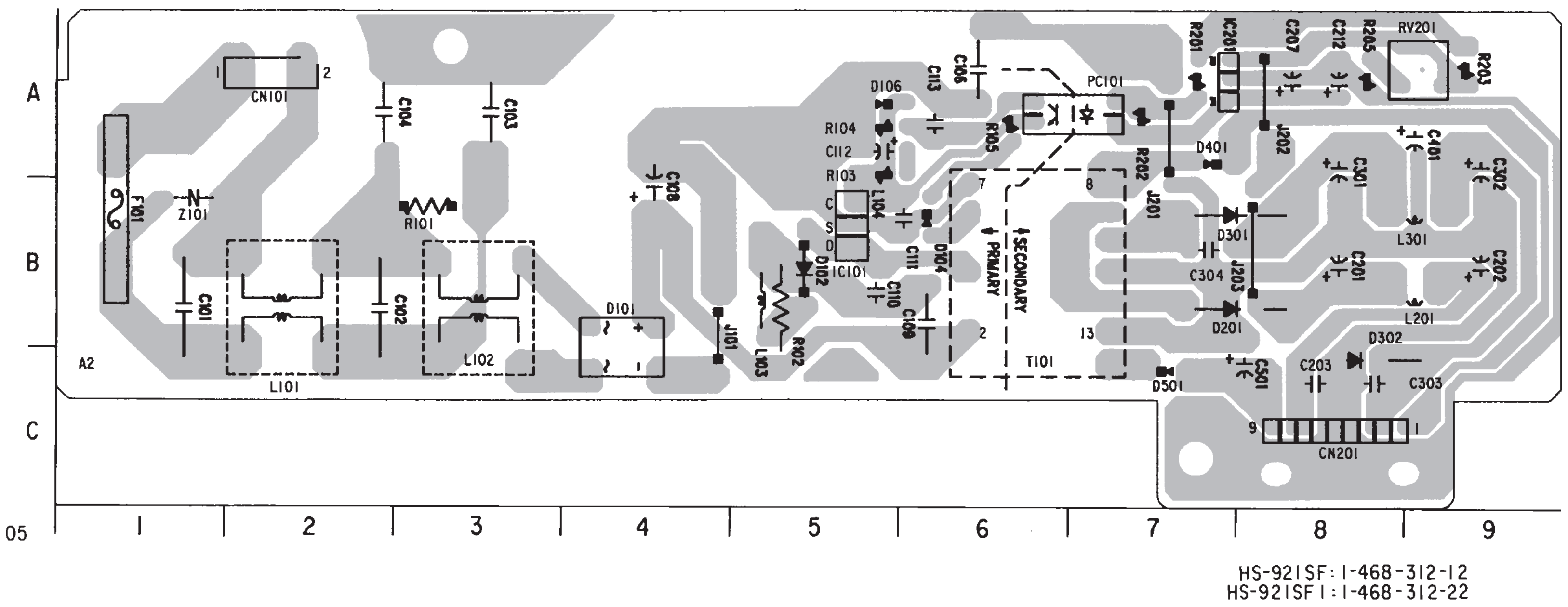
– SLV-ED10/ED40/ED60/ED70 –

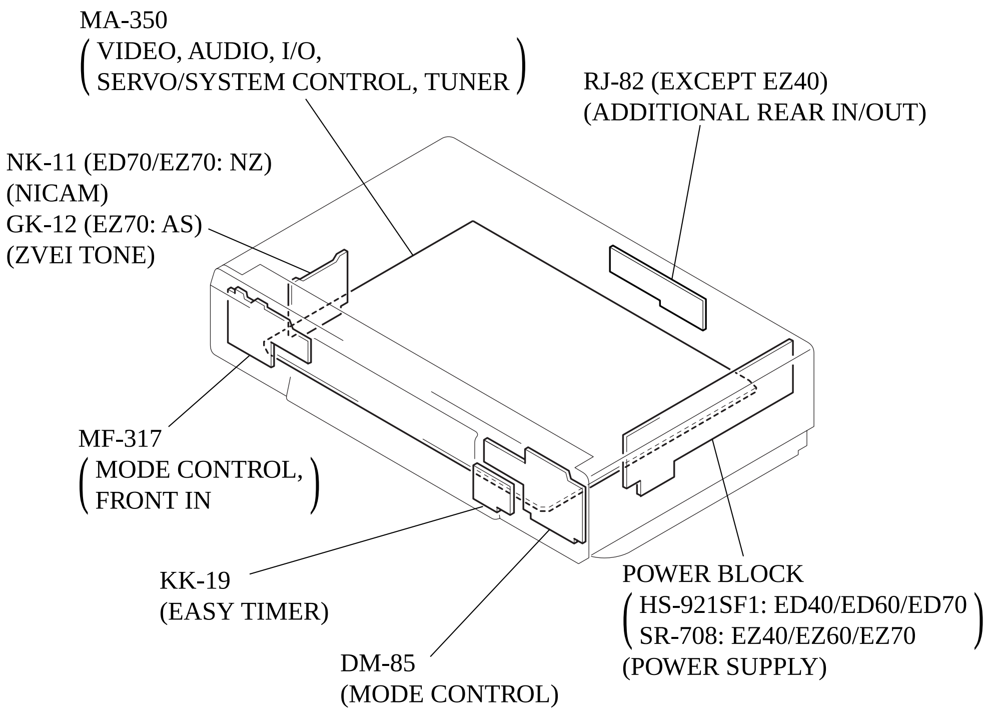

MA-350
VIDEO, AUDIO, I/O,
SERVO/SYSTEM CONTROL, TUNER
POWER BLOCK
HS-921SF: ED10
SR-718: EZ10
(POWER SUPPLY)
KK-18
(EASY TIMER)
DS-85
(MODE CONTROL)

HS-921SF/921SF1 BOARD

CN101	A-2
CN201	C-8
D101	B-4
D102	B-5
D104	B-6
D106	A-5
D201	B-7
D301	B-7
D302	C-8
D401	A-7
D501	C-7
IC101	B-5
IC201	A-7

There are few cases that the part isn't mounted in this model is printed on this diagram.

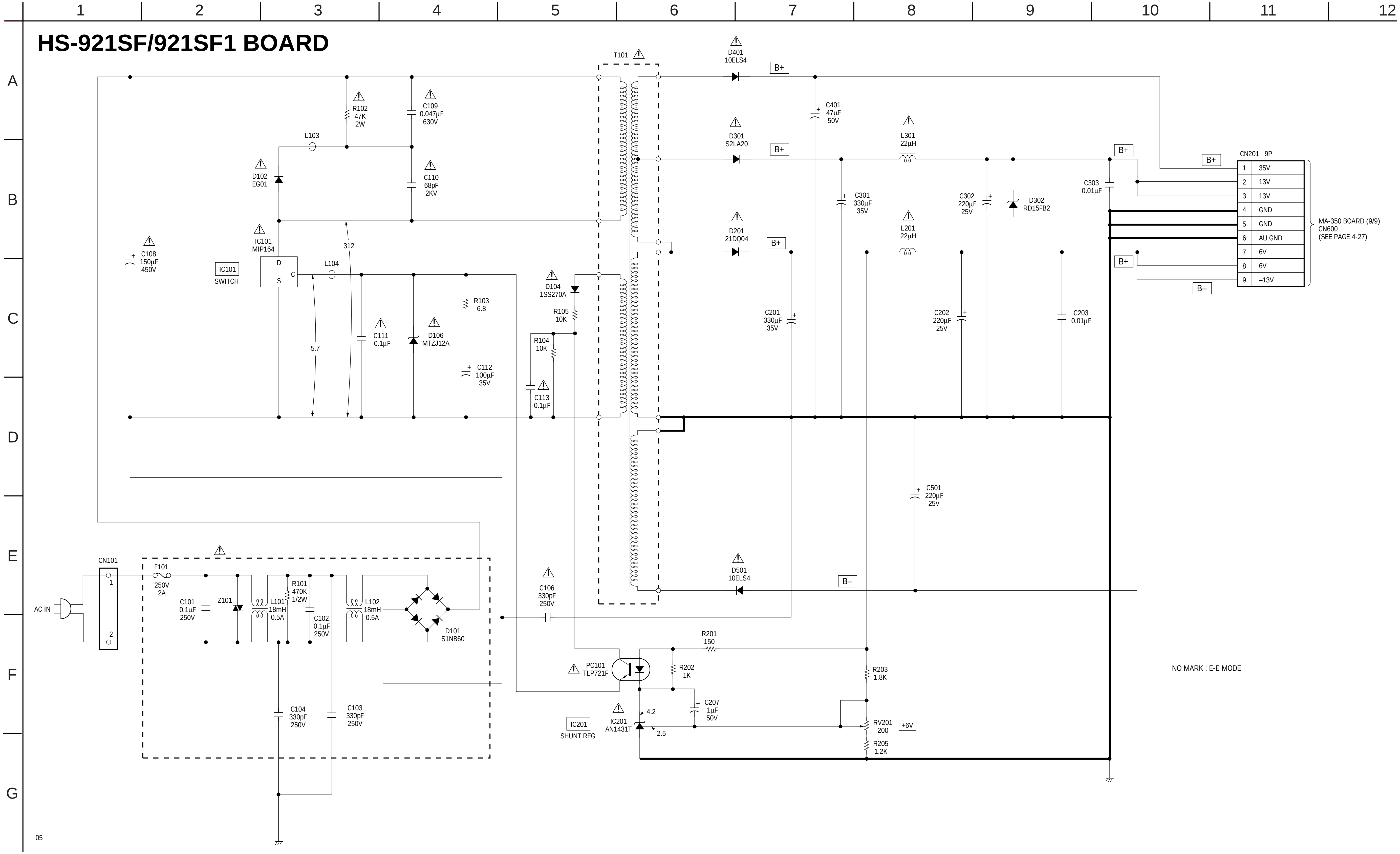

HS-921SF/921SF1 BOARD
A
B
C
1
2
3
4
5
6
7
8
9
05
CN101
F101
Z101
C104
C103
R101
C101
C102
L101
L102
C108
D101
J101
L103
R102
D106
C113
C106
R104
C112
R103
R105
L104
D102
IC101
C111
D104
C110
C109
PC101
PRIMARY
SECONDARY
T101
R202
J201
D401
J202
R201
IC201
C207
C212
R205
RV201
R203
C301
C401
C302
D301
L301
C304
J203
C201
C202
D201
L201
D302
D501
C501
C203
C303
CN201
A2
HS-921SF: 1-468-312-12
HS-921SF1: 1-468-312-22


MA-350
VIDEO, AUDIO, I/O,
SERVO/SYSTEM CONTROL, TUNER
RJ-82 (EXCEPT EZ40)
(ADDITIONAL REAR IN/OUT)
NK-11 (ED70/EZ70: NZ)
(NICAM)
GK-12 (EZ70: AS)
(ZVEI TONE)
MF-317
MODE CONTROL,
FRONT IN
KK-19
(EASY TIMER)
DM-85
(MODE CONTROL)
POWER BLOCK
HS-921SF1: ED40/ED60/ED70
SR-708: EZ40/EZ60/EZ70
(POWER SUPPLY)

HS-921SF/921SF1 (POWER SUPPLY) SCHEMATIC DIAGRAM

– Ref. No.: HS-921SF/921SF1 board; 3,000 series –

– SLV-ED10/ED40/ED60/ED70 –


1
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9
10
11
12
A
B
C
D
E
F
G
HS-921SF/921SF1 BOARD
T101
D401
10ELS4
B+
R102
47K
2W
C109
0.047µF
630V
L103
C401
47µF
50V
D301
S2LA20
L301
22µH
B+
B+
B+
CN201 9P
1 35V
2 13V
3 13V
4 GND
5 GND
6 AU GND
7 6V
8 6V
9 –13V
MA-350 BOARD (9/9)
CN600
(SEE PAGE 4-27)
D102
EG01
C110
68pF
2KV
C303
0.01µF
C301
330µF
35V
C302
220µF
25V
D302
RD15FB2
IC101
MIP164
312
D201
21DQ04
L201
22µH
B+
B+
B–
C108
150µF
450V
IC101
SWITCH
D
C
S
L104
D104
1SS270A
R103
6.8
R105
10K
C201
330µF
35V
C202
220µF
25V
C203
0.01µF
C111
0.1µF
D106
MTZJ12A
R104
10K
5.7
C112
100µF
35V
C113
0.1µF
C501
220µF
25V
CN101
F101
250V
2A
1
2
AC IN
C101
0.1µF
250V
Z101
L101
18mH
0.5A
R101
470K
1/2W
C102
0.1µF
250V
L102
18mH
0.5A
D101
S1NB60
C106
330pF
250V
D501
10ELS4
B–
R201
150
PC101
TLP721F
R202
1K
R203
1.8K
NO MARK : E-E MODE
C207
1µF
50V
IC201
SHUNT REG
IC201
AN1431T
4.2
2.5
RV201
200
+6V
R205
1.2K
C104
330pF
250V
C103
330pF
250V
05

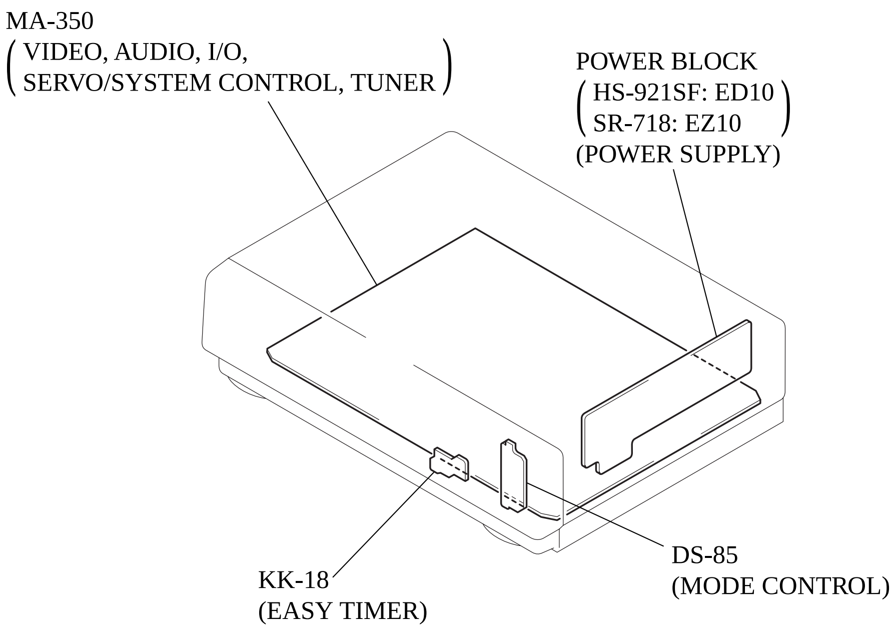
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

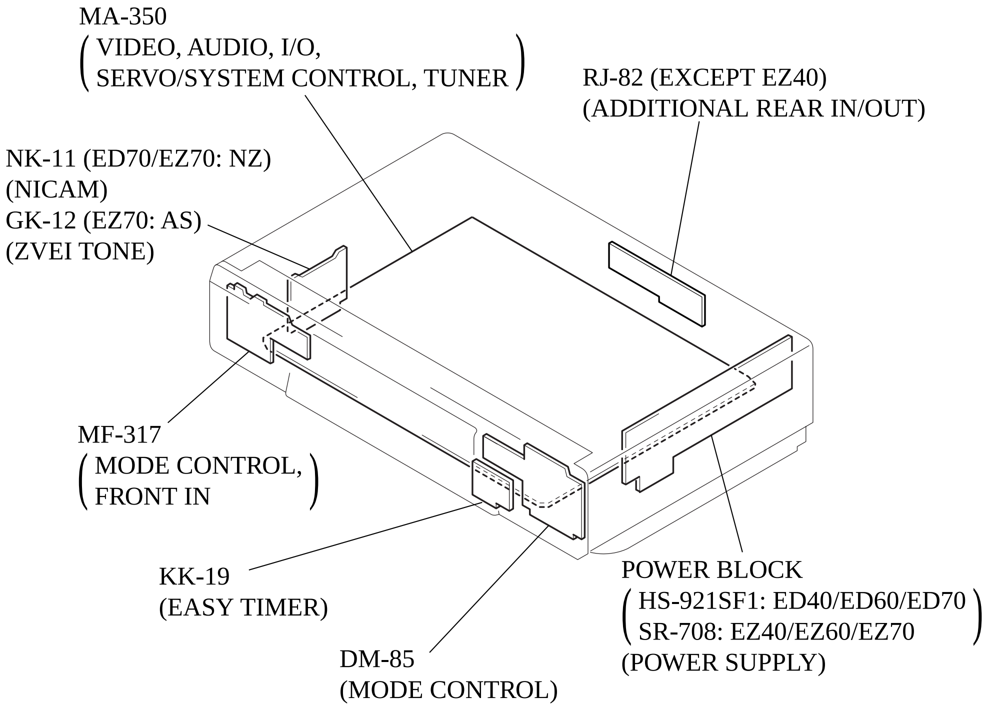
SR-708/718 (POWER SUPPLY) PRINTED WIRING BOARD

– Ref. No.: SR708/718 board; 4,000 series –

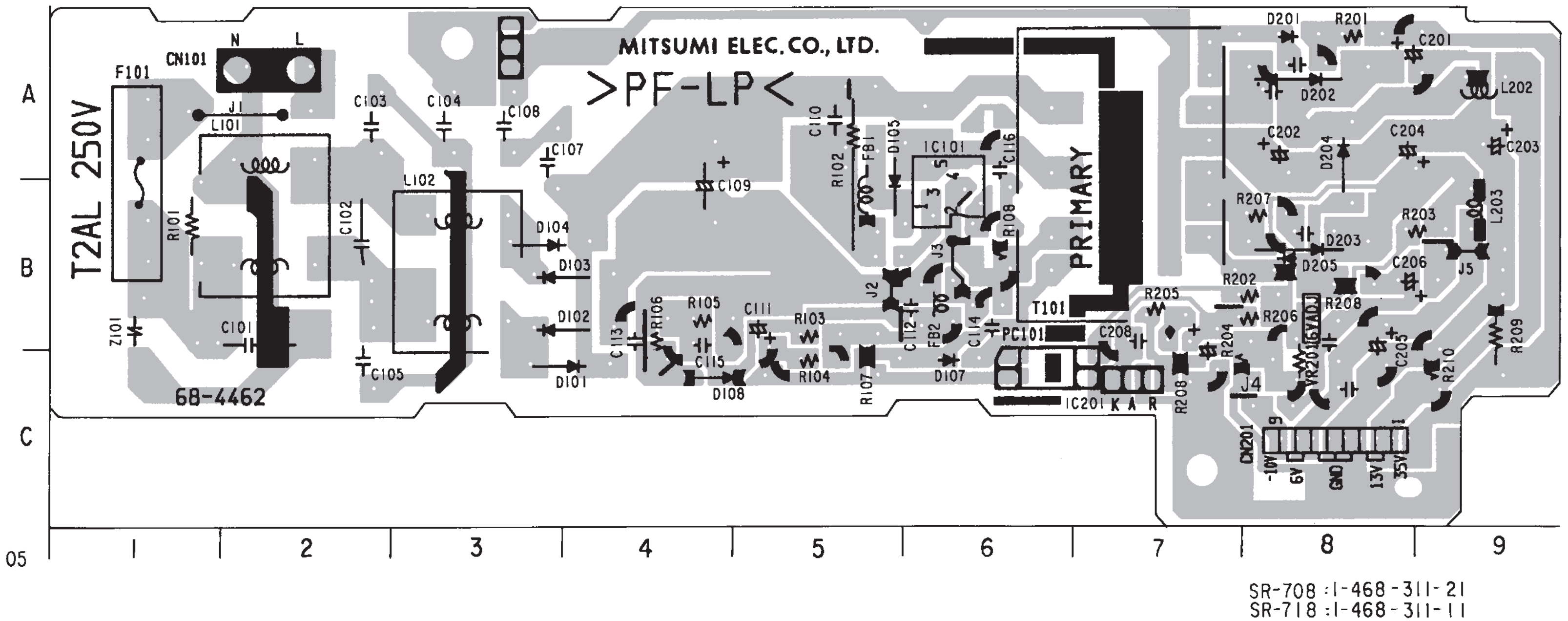
– SLV-EZ10/EZ40/EZ60/EZ70 –

There are few cases that the part isn't mounted in this model is printed on this diagram.


MA-350
(VIDEO, AUDIO, I/O,
SERVO/SYSTEM CONTROL, TUNER)
POWER BLOCK
(HS-921SF: ED10
SR-718: EZ10)
(POWER SUPPLY)
KK-18
(EASY TIMER)
DS-85
(MODE CONTROL)


MA-350
(VIDEO, AUDIO, I/O,
SERVO/SYSTEM CONTROL, TUNER)
RJ-82 (EXCEPT EZ40)
(ADDITIONAL REAR IN/OUT)
NK-11 (ED70/EZ70: NZ)
(NICAM)
GK-12 (EZ70: AS)
(ZVEI TONE)
MF-317
(MODE CONTROL,
FRONT IN)
KK-19
(EASY TIMER)
DM-85
(MODE CONTROL)
POWER BLOCK
(HS-921SF1: ED40/ED60/ED70
SR-708: EZ40/EZ60/EZ70)
(POWER SUPPLY)

SR-708/718 BOARD


MITSUMI ELEC. CO., LTD.
>PF-LP<
T2AL 250V
PRIMARY
68-4462
F101
CN101
N
L
J1
L101
L102
R101
Z101
C101
C102
C103
C104
C105
C107
C108
C109
C110
C111
C112
C113
C114
C115
C116
D101
D102
D103
D104
D105
D107
D108
R102
R103
R104
R105
R106
R107
R108
FB1
FB2
IC101
J2
J3
T101
PC101
IC201
K A R
C208
R205
R204
R208
J4
CN201
-10V
6V
GND
13V
35V
D201
R201
C201
L202
D202
C202
D204
C204
C203
R207
D203
R203
L203
D205
C206
J5
R202
R206
R208
R201
C205
R210
R209
A
B
C
05
1
2
3
4
5
6
7
8
9
SR-708 :1-468-311-21
SR-718 :1-468-311-11

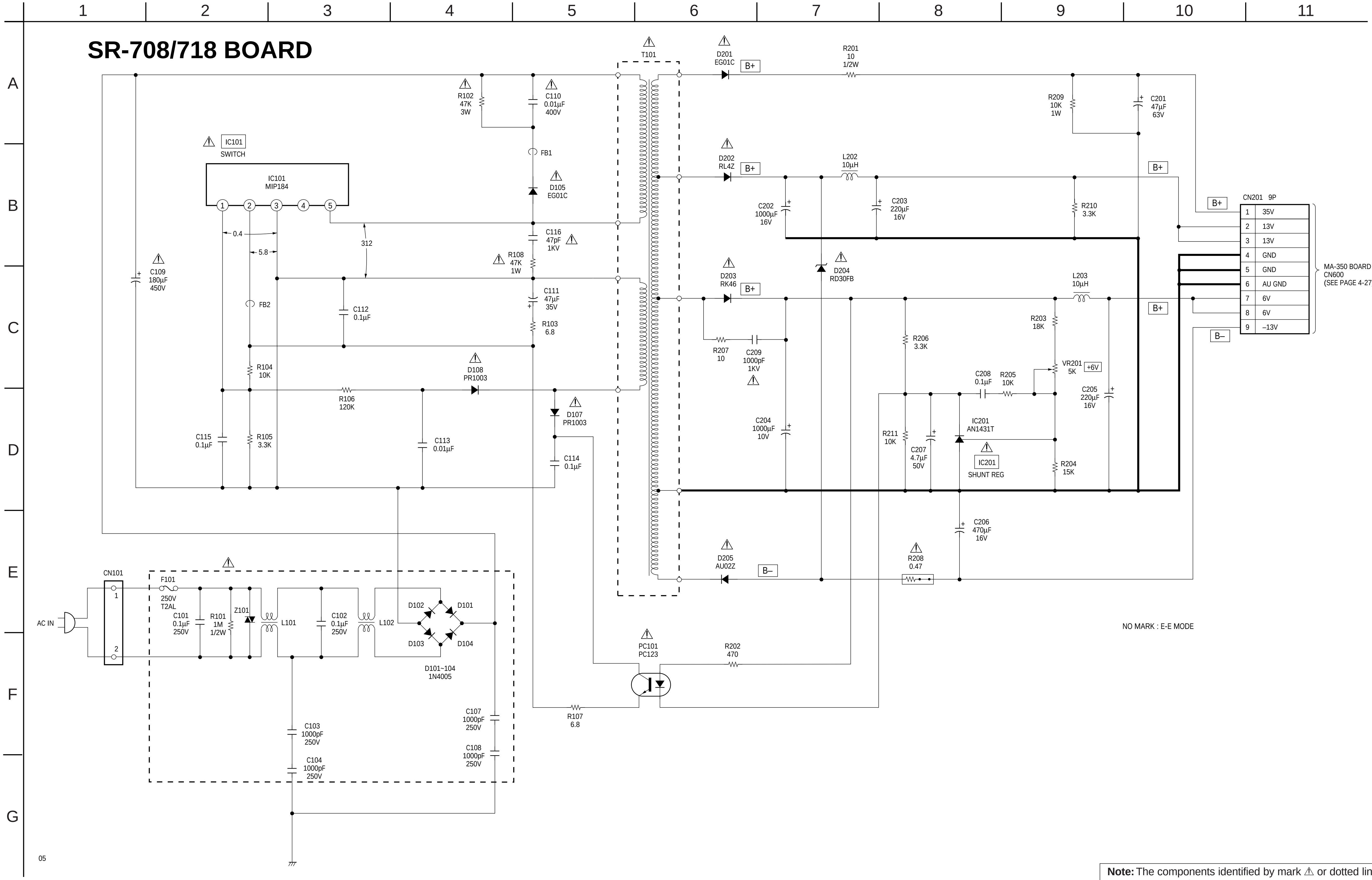
SR-708/718 BOARD

CN101	A-2
CN201	C-8
D101	C-3
D102	B-3
D103	B-3
D104	B-3
D105	B-5
D107	C-6
D108	C-4
D201	A-8
D202	A-8
D203	B-8
D204	A-8
D205	B-8
IC101	B-6
IC201	C-7

SR-708/718 (POWER SUPPLY) SCHEMATIC DIAGRAMS

– Ref. No.: SR-708/718 board; 4,000 series –

– SLV-EZ10/EZ40/EZ60/EZ70 –



1
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6
7
8
9
10
11
A
B
C
D
E
F
G
SR-708/718 BOARD
T101
D201
EG01C
B+
R201
10
1/2W
R102
47K
3W
C110
0.01μF
400V
R209
10K
1W
C201
47μF
63V
IC101
SWITCH
FB1
IC101
MIP184
1
2
3
4
5
D105
EG01C
D202
RL4Z
B+
L202
10μH
B+
C202
1000μF
16V
C203
220μF
16V
R210
3.3K
B+
CN201 9P
1 35V
2 13V
3 13V
4 GND
5 GND
6 AU GND
7 6V
8 6V
9 –13V
MA-350 BOARD (9/9)
CN600
(SEE PAGE 4-27)
0.4
5.8
312
C116
47pF
1KV
R108
47K
1W
C109
180μF
450V
D204
RD30FB
D203
RK46
B+
L203
10μH
C111
47μF
35V
B+
FB2
C112
0.1μF
R103
6.8
R203
18K
B–
R207
10
C209
1000pF
1KV
R206
3.3K
R104
10K
D108
PR1003
VR201
5K
+6V
C208
0.1μF
R205
10K
C205
220μF
16V
R106
120K
D107
PR1003
C204
1000μF
10V
IC201
AN1431T
C115
0.1μF
R105
3.3K
C113
0.01μF
R211
10K
C207
4.7μF
50V
C114
0.1μF
IC201
SHUNT REG
R204
15K
C206
470μF
16V
D205
AU02Z
B–
R208
0.47
CN101
F101
250V
T2AL
1
2
AC IN
C101
0.1μF
250V
R101
1M
1/2W
Z101
L101
C102
0.1μF
250V
L102
D102
D101
D103
D104
D101~104
1N4005
NO MARK : E-E MODE
PC101
PC123
R202
470
R107
6.8
C107
1000pF
250V
C108
1000pF
250V
C103
1000pF
250V
C104
1000pF
250V
05

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 5
INTERFACE, IC PIN FUNCTION DESCRIPTION

5-1. SYSTEM CONTROL – VIDEO BLOCK INTERFACE (MA-350 BOARD IC161)

Signal	Pin No.	I/O	STOP/ FF/ REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB • PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC • PAUSE
RF SWP	MA-350 IC161㉔	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
QVD	MA-350 IC161㉗	O	L	L	L	*2	*3	*3	*3	*3	*3	L	L
C SYNC	MA-350 IC161(54)	I	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4

*1. 25 Hz pulse with 50% duty cycle. Synchronized with rotation of drum.
*2. Normal PB “L”. V period “H” pulse when ×1.
*3. V period “H” pulse.
*4. Composite sync signal (positive polarity).

5-2. SYSTEM CONTROL – SERVO PERIPHERAL CIRCUIT INTERFACE (MA-350 BOARD IC161)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREAD-ING	TAPE UNTHREAD-ING	PB	PB • PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC • PAUSE
CAP QR	MA-350 IC161(94)	O	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z	*2	Hi-Z	Hi-Z	Hi-Z	Hi-Z	Hi-Z
DRUM PG	MA-350 IC161㊴	I	*3	*1	*1	*4	*4	*1	*1	*1	*1	*1	*1	*1	*1
DRUM FG	MA-350 IC161㊳	I	*3	*6	*6	*4	*4	*6	*6	*6	*6	*6	*6	*6	*6
CAP FG	MA-350 IC161㊵	I	H/L	*5	*5	*4	*4	*5	H/L	*5	*5	*5	*5	*5	H/L
CAP VS	MA-350 IC161㉕	O	*7	*7	*7	*7	*7	*8	*7	*7	*8	*8	*8	*8	*7
DRUM VS	MA-350 IC161㉖	O	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9	*9

*1. 25 Hz (PAL), 30 Hz (NTSC) pulse.
*2. Pulse at tape running.
*3. “L” when drum rotation stop.
*4. Unstable period pulse.
*5. Pulse of period in proportion to tape speed.
*6. 300 Hz (PAL), 360 Hz (NTSC) pulse.
*7. Pulse at tape running.
*8. Approx. 2 msec period “H” or “L” pulse.
*9. Approx. 1.5 msec period “H” or “L” pulse.

5-3. SYSTEM CONTROL – MECHANISM BLOCK INTERFACE (MA-350 BOARD IC161)

Signal	Pin No.	I/O	EJECTED	CASSETTE LOADING	CASSETTE UNLOADING	TAPE THREAD-ING	TAPE UNTHREAD-ING	STOP	FF	REW	PB	PB • PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC • PAUSE
CAM	MA-350 IC161(83)	O	Hi-Z	H	L	H	L	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7	*7
MODE 1	MA-350 IC161(84)	I	H	L	L	*1	*1	H	H	H	H	H	H	H	H	L	H	H
MODE 2	MA-350 IC161(85)	I	H	L	L	*1	*1	H	H	H	L	L	L	L	L	L	L	L
MODE 3	MA-350 IC161(86)	I	L	L	L	*1	*1	H	L	L	L	L	L	L	L	H	L	L
MODE 4	MA-350 IC161(87)	I	L	H	H	*1	*1	L	H	H	L	L	L	L	L	L	L	L
REC PRF	MA-350 IC161(55)	I	H	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
T REEL	MA-350 IC161(88)	I	H/L	H/L	H/L	H/L	H/L	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
S REEL	MA-350 IC161(89)	I	H/L	H/L	H/L	*3	*3	H/L	*3	*3	*3	H/L	*3	*3	*3	*3	*3	H/L
END-LED	MA-350 IC161(74)	O (O.D)	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4	*4
$\overline{\text{CAP RVS}}$	MA-350 IC161(93)	I	L			H	L	H/L	H	L	H	H	H	H	H	L	H	H
T SENS	MA-350 IC161⑫	I	*4	*4	*4	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6
S SENS	MA-350 IC161⑪	I	*4	*4	*4	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6	*6

*1. Uncertainty.
*2. “L” when erasing protection tab is bent, “H” when not bent.
*3. Pulse of period in proportion to reel rotating speed.
*4. Approx. 2 msec period “H” pulse.
*5. Pulse at tape running.
*6. Normally “L”. 2 msec period “H” pulse when tape top or tape end is detected.
*7. When transition to UNLOADING direction: L.
When transition to LOADING direction: H.
When CAM motor is stopped: Hi-Z.

5-4. SYSTEM CONTROL – AUDIO BLOCK INTERFACE (MA-350 BOARD IC161)

Signal	Pin No.	I/O	STOP/ FF/ REW	TAPE THREAD- ING	TAPE UNTHREAD- ING	PB	PB • PAUSE	SLOW	× 2	CUE	REVIEW	REC	REC • PAUSE
AU RF	MA-350 IC161⑭	I	AF RF envelope signal input terminal for automatic tracking.										
A MUTE	MA-350 IC161(79)	O (O.D)	Hi-Z	Hi-Z	Hi-Z	Hi-Z	H	H	H	H	H	L	L
AF REC P	MA-350 IC161(60)	O	H	H	H	H	H	H	H	H	H	L	H
AF SWP	MA-350 IC161㉓	O	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1	*1
$\overline{\text{FULL ERASE}}$	MA-350 IC161(91)	O (O.D)	H	H	H	H	H	H	H	H	H	L	H
AF REC	MA-350 IC161(59)	O	L	L	L	L	L	L	L	L	L	H	H
REC P	MA-350 IC161(92)	O	L	L	L	L	L	L	L	L	L	H	L
NAPB	MA-350 IC161㉑	O	L	L	L	L	L	L	L	L	L	H	L

*1. 25 Hz (PAL), 30 Hz (NTSC) 50% duty pulse approx. 5 msec delayed from RF SW P.

5-5. SERVO/SYSTEM/TIMER/TUNER/MODE CONTROL, OSD MICROPROCESSOR PIN FUNCTION (MA-350 BOARD IC161)

Pin No.	Pin Name	I/O	Function
1	SW1	O	Tuner system control-1 signal output
2	AN GND	–	Analog ground
3	APC ERROR	I	APC error voltage signal input
4	DMS UP	I	Click shuttle forward/reverse signal input (DMS models only)
5	FUNC. KEY2	I	Function key analog voltage signal input
6	TU AFT	I	Auto fine tuning signal input
7	FUNC. KEY1	I	Function key analog voltage signal input
8	POWER FAIL	I	Power failure detect signal input
9	DMS DOWN	I	Click shuttle forward/reverse signal input (DMS models only)
10	DEST	I	Destination set signal input
11	S SENS	I	Supply end sensor signal input
12	T SENS	I	Take up end sensor signal input
13	VIDEO RF	I	Video RF envelop signal input
14	AU RF	I	Hi-Fi audio envelop signal input
15	AN 5V	–	Power supply analog 5V
16	RESET	I	Reset signal input
17	3.58/4.43	O	NTSC color freq. judge signal output
18	PAL	O	“H”: PAL (video block control signal output)
19	ETR1	I	Easy timer knob pulse-1 signal input
20	ETR2	I	Easy timer knob pulse-2 signal input
21	NAPB	O	Normal audio PB signal output
22	VCC	–	Power supply unswitch 5V
23	AF SWP	O	AF switching pulse signal output
24	RF SWP	O	RF switching pulse signal output
25	CAP VS	O	Capstan error signal output
26	DRUM VS	O	Drum motor error signal output
27	QVD	O	Quasi VD pulse signal output
28	N.C.	–	Not used
29	H.AMPSW	O	“H”: A-DUB mode (CTL amp. gain control signal output)
30	N.C.	–	Not used
31	CTL (+)	I/O	CTL head signal input/output (REC mode)
32	CTL (-)	I/O	CTL head signal input/output (REC mode)
33	VSS (SERVO)	–	Servo ground
34	CTL-AMP1	I	CTL amp. control signal input (gain set)
35	CTL-AMP2	I	CTL amp. control signal input (gain set)
36	CTL-AMP3	I	CTL amp. control signal input (gain set)
37	CTL-AMP OUT	O	CTL amp. control signal output (for check)
38	DRUM FG	I	Drum FG schmitt amp. input
39	DRUM PG	I	Drum PG schmitt amp. input
40	CAP FG	I	Capstan FG schmitt input
41	VCC (SERVO)	–	Power supply unswitch 5V
42	VCC (OSD)	–	Power supply OSD 5V
43	CV IN	I	Composite video signal input
44	VREF	I	Reference bias and clamp bias power signal input
45	CV OUT	O	Composite video signal output
46	N.C.	–	Not used
47	AFC LPF	I	AFC LPF signal input
48	AFC OSC	I	AFC oscillation signal input
49	VSS (OSD)	–	OSD ground
50	DOSC-IN	I	OSC dot clock oscillator signal input
51	DOSC-OUT	O	OSC dot clock oscillator signal output
52	4FSC-OUT	O	OSC 4fsc oscillator terminal signal output
53	4FSC-IN	I	OSC 4fsc oscillator terminal signal input
54	CSYNC	I	Composite sync signal input
55	REC PRF	I	Erasing protection tab. cassette in detection signal input
56	IIC DATA	O	EEP ROM, Hi-Fi IC, tuner/serial communication data signal output
57	IIC CLOCK	O	EEP ROM, Hi-Fi IC, tuner/serial communication clock signal output
58	DRUM QR	O	Drum motor step driving signal output
59	AF REC	O	“H”: output when Hi-Fi audio REC
60	AF REC P	O	“L”: output when Hi-Fi audio REC pause
61	N.C.	–	Not used
62	IIC CLOCK (VIDEO)	O	Video, video amp. serial communication clock signal output
63	IIC DATA (VIDEO)	O	Video, video amp. serial communication data signal output
64	BLUE BACK	O	OSD block control signal output
65	APC PWM	O	APC PWM signal output
66	CAP TRQ PWM	O	Capstan TRQ PWM signal output
67	N.C.	–	Not used
68	TEST	I	Fixed to ground
69	32kHz-IN	I	Timer clock terminal (32kHz) input
70	32kHz-OUT	O	Timer clock terminal (32kHz) output
71	VSS	–	Ground
72	10MHz-IN	I	System clock terminal (10MHz) input
73	10MHz-OUT	O	System clock terminal (10MHz) output
74	END-LED	O	Top/end LED on/off control signal output
75	POWER CONT	O	Power supply control signal output
76	N.C.	–	Not used
77	N.C.	–	Not used
78	OSD SEL	O	OSD XÅftal select (PAL/NTSC) signal output
79	A MUTE	O	“H”: audio mute signal output
80	WRITE CONT	O	EEP ROM write timing control signal output
81	IN SEL	O	Line-input selection control signal output
82	REMOCON	I	Remote control (SIRCS) signal input
83	CAM	O	CAM motor control signal output
84	MODE1	I	Mechanism section CAM encoder data 1 input
85	MODE2	I	Mechanism section CAM encoder data 2 input
86	MODE3	I	Mechanism section CAM encoder data 3 input
87	MODE4	I	Mechanism section CAM encoder data 4 input
88	T REEL	I	T side reel FG input
89	S REEL	I	S side reel FG input
90	$\overline{\text{FLD CS}}$	O	FIP driver chip select signal output
91	$\overline{\text{FULL ERASE}}$	O	Full erase head on/off control signal output
92	$\overline{\text{REC P}}$	O	“L”: output when REC pause
93	$\overline{\text{CAP RVS}}$	O	Capstan reverse control signal “H”: when reverse
94	CAP QR	O	Capstan step driving signal output
95	S CLOCK	O	Serial communication clock signal output
96	S IN	I	Serial communication data signal input
97	S OUT	O	Serial communication data signal output
98	PLL CLOCK	O	Tuner PLL clock signal output
99	TU ENABLE	O	Tuner PLL chip select signal output
100	PLL DATA	O	Tuner PLL data signal output

5-6. NICAM PROCESSOR PIN FUNCTION (NK-11 BOARD IC1)

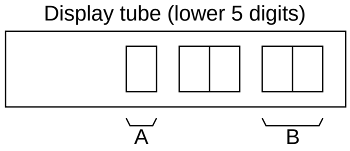
Pin. No.	Pin Name	I/O	Function
1	OUT L	O	Analog signal output left
2	OUT R	O	Analog signal output right
3	VDD A1	–	Analog power supply 5V; DAC circuitry
4	VSS A1	–	Analog ground; DAC circuitry
5	VSS D1	–	Digital ground; DAC circuitry
6	VDD D1	–	Digital power supply 5V; DAC circuitry
7	VSS D2	–	Digital ground; DSP part
8	VDD D2	–	Digital power supply 5V; DSP part
9	TP2	I	Additional test pin 2; connected to ground for normal operation
10	N.C.	–	Not used
11	TP1	I	Additional test pin 1; connected to ground for normal operation
12	N.C.	–	Not used
13	N.C.	–	Not used
14	V TUNE	O	Tuning voltage output for crystal oscillator
15	XTAL I	I	Crystal oscillator input
16	XTAL O	O	Crystal oscillator output
17	TEST2	I	Test pin 2; connected to ground for normal operation
18	I REF	I	Resistor for reference current generation; front end circuitry
19	N.C.	–	Not used
20	VSS A2	–	Analog ground; analog front end circuitry
21	VDD A2	–	Analog power supply 5V; analog front end circuitry
22	TEST1	I	Test pin 1; connected to ground for normal operation
23	SIF2	I	Sound IF input 2
24	V REF1	I	Reference voltage; analog front end circuitry
25	SIF1	I	Sound IF input 1
26	C RST		Capacitor for power-on reset
27	VSS D3	–	Digital ground; front end circuitry
28	VDD D3	–	Digital power supply 5V; front end circuitry
29	SCL	I	Serial communication clock signal input
30	SDA	I	Serial communication data signal input
31	N.C.	–	Not used
32	N.C.	–	Not used
33	N.C.	–	Not used
34	N.C.	–	Not used
35	VDD D4	–	Digital power supply 5V; demodulator circuitry
36	VSS D4	–	Digital ground; demodulator circuitry
37	N.C.	–	Not used
38	N.C.	–	Not used
39	EXTI R	I	External audio input right channel
40	EXTI L	I	External audio input left channel
41	V REF2	I	Analog reference voltage digital-to-analog converter and operational amplifiers
42	N.C.	–	Not used
43	VDD A3	–	Analog power supply 5V; operational amplifiers
44	VSS A3	–	Analog ground; operational amplifiers

5-7. ZWEITON PROCESSOR PIN FUNCTION (GK-12 BOARD IC001)

Pin. No.	Pin Name	I/O	Function
1	OUT L	O	Audio left signal output
2	OUT R	O	Audio right signal output
3	CDE1	–	De-emphasis 1 capacitor
4	N.C.	–	Not used
5	N.C.	–	Not used
6	CDE2	–	De-emphasis 2 capacitor
7	A GND	–	Analog ground
8	AF1 I	I	Audio 1 signal input
9	N.C.	–	Not used
10	AF1 O	O	Audio 1 signal output
11	N.C.	–	Not used
12	N.C.	–	Not used
13	AFR	I	AF 1/2 signal return
14	LF1	–	Loop filter 1
15	XTAL	I	4MHz reference input
16	N.C.	–	Not used
17	N.C.	–	Not used
18	LF2	–	Loop filter 2
19	N.C.	–	Not used
20	N.C.	–	Not used
21	MAD	I	Programmable address bit (module address)
22	N.C.	–	Not used
23	N.C.	–	Not used
24	CAF1	O	AF1 capacitor
25	IF INT	I	IF intercarrier input
26	CAF2	O	AF2 capacitor
27	D GND	–	Digital ground
28	VCC	–	Power supply 5V
29	SCL	I	Serial communication clock input
30	SDA	I/O	Serial communication data input and output
31	LPF	–	Pilot loop filter
32	AF2 O	O	Audio 2 signal output
33	AF2 I	I	Audio 2 signal input
34	CTR IG	–	Trigger capacitor
35	CID	–	Identification capacitor
36	N.C.	–	Not used
37	P1	O	Output port 1
38	EXT M	I	External audio input monaural channel
39	EXTI R	I	External audio input right channel
40	EXTI L	I	External audio input left channel
41	V REF	I	Analog reference voltage digital-to-analog converter and operational amplifiers
42	P2	O	Output port 2
43	OUT M	O	Audio monaural signal output
44	N.C.	–	Not used

SECTION 6
ERROR CODES

This set displays an error code, and a mode code in case of error on the display tube, if the operation stopped by error.
The following provides description concerned.



A: Error code .... Table 6-1
B: Mode code in case of error .... Table 6-2

These codes are displayed at lower 5-digit positions of display tube.
In this case, " : " between digits is not displayed.

Table 6-1. Error Codes

Code	Description
0	NO ERROR
1	CAM ENCODER ERROR, LOAD DIRECTION
2	CAM ENCODER ERROR, UNLOAD DIRECTION
3	T REEL ERROR
4	S REEL ERROR
5	CAPSTAN ERROR
6	DRUM ERROR
7	INITIALIZE ERROR
8	CASSETTE UNLOADING ERROR
9	RESERVED

Table 6-2. Mode Codes in Case of Error

Code	Description
0	EJECT (POWER ON)
1	EJECT (POWER OFF)
2	UNLOAD STOP
3	STOP (POWER ON)
4	POWER OFF (CASSETTE IN)
5	F. FWD
6	REW
7	LOW SPEED F. FWD
8	LOW SPEED REW
9	STANDBY
10	REC
11	REC (VISS)
12	REC PAUSE
13	PLAY
14	A. DUB
15	A. DUB PAUSE
16	CUE
17	REV
18	STILL (MECHA FWD)
19	FWD FRAME BY FRAME (FWD SLOW)
20	STILL (MECHA RVS)
21	RVS FRAME BY FRAME (RVS SLOW)

SECTION 7
ADJUSTMENTS

During the adjustment, see the Parts Arrangement Diagram for Adjustments on Page 7-6.

7-1. MECHANICAL ADJUSTMENTS

Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT VI.

7-2. ELECTRICAL ADJUSTMENTS

2-1. PRE-ADJUSTMENT PREPARATIONS

Necessary items and indications for total adjustment of electric circuit of this machine will be described in this chapter.

2-1-1. Instruments to be Used

1) Color TV
2) Oscilloscope 1 or 2 phenomena, band more than 30 MHz, delay mode, as provided.
3) NTSC pattern generator
4) PAL pattern generator
5) Digital voltmeter
6) Audio level meter
7) Audio noise meter
8) Audio generator
9) Attenuator
10) Alignment tape
    Part Code: 8-192-605-36 KRV-51P (PAL)
    Part Code: 8-192-605-32 KRV-51N2 (NTSC)

2-1-2. Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown in the following diagram.

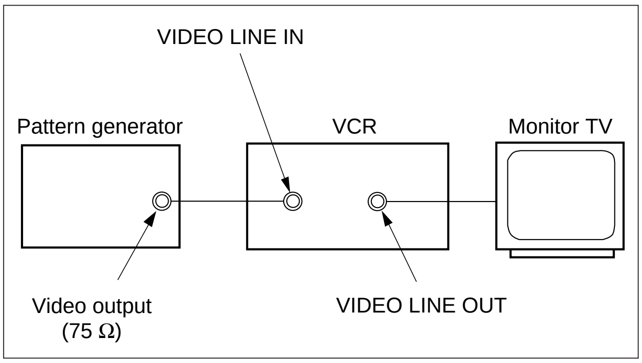

VIDEO LINE IN
Pattern generator
VCR
Monitor TV
Video output
(75 Ω)
VIDEO LINE OUT

Fig. 7-2-1

2-1-3. Set-up of Adjustment

In this adjustment, PAL or NTSC pattern generator is connected with LINE input signal terminal. When checking with tuner, connected AERIAL terminal. Check that the amplitudes of video signal SYNC signal, of picture portions, and of burst signals are flat at approximately 0.3, 0.7 and 0.3 V, respectively, and that the level ratio of the burst signal and “red” signal are 0.30: 0.66. Fig. 7-2-2. shows video signals (color bars) used in adjusting the video section.

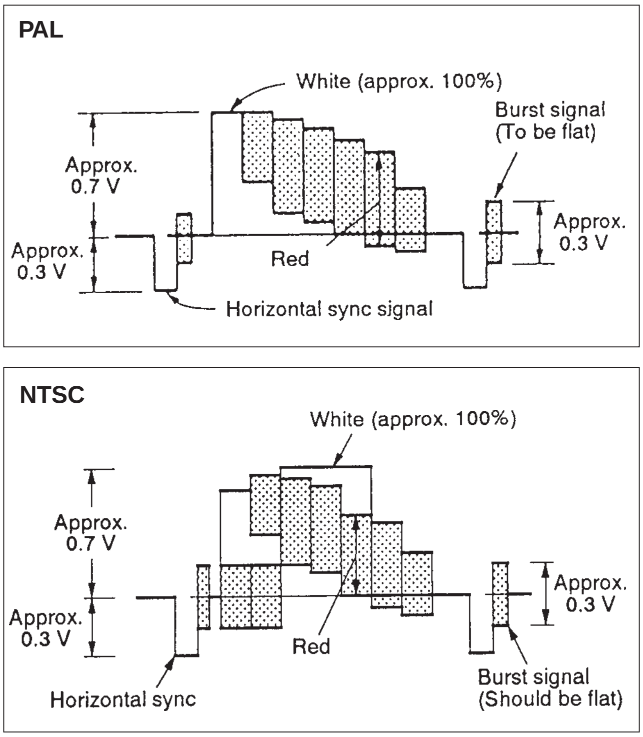

PAL
White (approx. 100%)
Burst signal
(To be flat)
Approx.
0.7 V
Approx.
0.3 V
Red
Approx.
0.3 V
Horizontal sync signal
NTSC
White (approx. 100%)
Approx.
0.7 V
Approx.
0.3 V
Approx.
0.3 V
Red
Horizontal sync
Burst signal
(Should be flat)

Fig. 7-2-2

2-1-4. Alignment Tapes
[Alignment Tape (KRV-51N2/KRV-51P)]

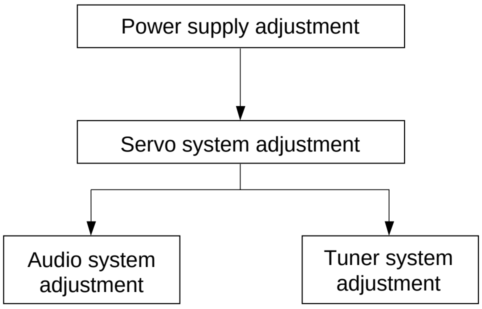
	Mode	Time	Video signal	Audio signal (HiFi/Normal)
1	SP	Seven minutes	Color bar	400 Hz
2	SP	Three minutes	Monoscope	
3	EP	Seven minutes	Color bar	
4	EP	Three minutes	Monoscope	

2-1-5. Specified I/O Level and Impedance
Input/output terminal

Video inputs LINE IN : phono jack
1 Vp-p, 75 Ω, unbalanced, sync negative
Audio inputs LINE IN : phono jacks
47 kW, –7.5 dBs (0 dBs = 0.775 Vrms)
More than 10 kW, –4 dBs
Video outputs LINE OUT: phono jack
1 Vp-p, 75 Ω, unbalanced, sync negative
Audio outputs LINE OUT: phono jacks
–7.5 dBs at load impedance 47 kΩ
Output impedance : less than 10 Ω

2-1-6. Adjusting Sequence

Make the electrical adjustment in the following sequence.


Power supply adjustment
Servo system adjustment
Audio system adjustment
Tuner system adjustment

2-2. POWER SUPPLY ADJUSTMENTS

2-2-1. Power Supply Check (HS-921SF/921SF1 BOARD, SR-708/718 BOARD)

Mode	E-E
Measuring Instrument	Digital voltmeter
–10 V check	
Measurement Point	Pin ⑨ of CN201
Specified Value	–9.5 ±0.8 V
+6 V check	
Measurement Point	Pin ⑦, ⑧ of CN201
Specified Value	5.9 ± 0.2 V
+13 V check	
Measurement Point	Pin ②, ③ of CN201
Specified Value	13.8 ± 1.2 V
+35 V check	
Measurement Point	Pin ① of CN201
Specified Value	35.0 ± 3.0 V

Checking Method:

1) Confirm that each voltage meets its specified value.

2-2-2. +6 V Adjustment (HS-921SF/921SF1 BOARD, SR-708/718 BOARD)

Mode	REC or PB
Measuring Instrument	Digital voltmeter
Measurement Point	Pin ⑦, ⑧ of CN201
Adjusting Element	RV201 (HS-921SF/921SF1 BOARD) VR201 (SR-708/718 BOARD)
Specified Value	5.9 ± 0.2 V

2-3. SERVO SYSTEM ADJUSTMENT

2-3-1. RF Switching Position Adjustment (MA-350 BOARD)

Purpose:

Adjust the interval between A ch and B ch of tape playback output.

Improve the interchangeability with other tapes and sets.

When it is out of order, the interval appears on the screen, the screen is disturbed.

Mode	PB
Signal	Alignment tape SP mode color bar
Measurement Point	CH1: Pin ② of CN203 CH2: Pin ③ of CN203 (RF SWP)
Measuring Instrument	Oscilloscope
Specified Value	6.5 ± 0.5 H (416 ± 32 µsec) PAL 6.5 ± 0.5 H (410 ± 32 µsec) NTSC

Adjusting Method:

1) Connect MA-350 board JS450 to the GND for about 1 second to activate the RF switching position adjustment mode.
2) Check appear “A P” on FL display.
3) Using the channel + and – buttons, adjust to 6.5 ± 0.5 H.
4) Press the pause button.

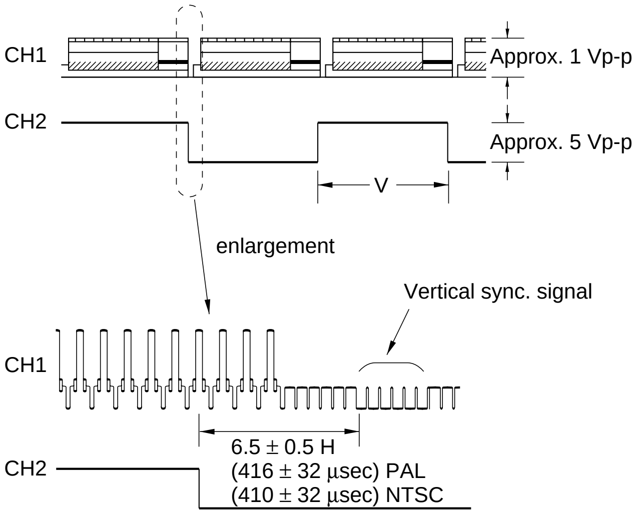

CH1
Approx. 1 Vp-p
CH2
Approx. 5 Vp-p
V
enlargement
Vertical sync. signal
CH1
CH2
6.5 ± 0.5 H
(416 ± 32 µsec) PAL
(410 ± 32 µsec) NTSC

Fig. 7-2-3.

2-4. AUDIO SYSTEM ADJUSTMENTS

- Adjust both Lch and Rch.

[Connection]

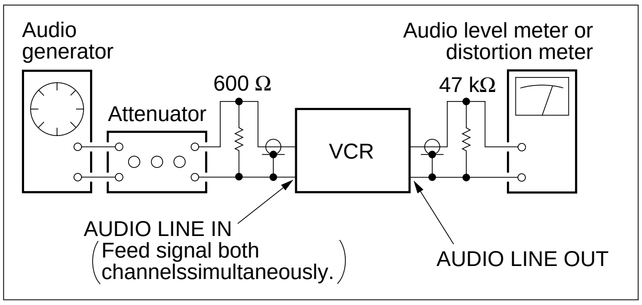

Audio generator
Audio level meter or distortion meter
600 Ω
47 kΩ
Attenuator
VCR
AUDIO LINE IN
(Feed signal both channelssimultaneously.)
AUDIO LINE OUT

Fig. 7-2-4.

2-4-1. Hi-Fi Audio System Adjustment (SLV-ED60/ED70/EZ60/EZ70)

- Set switches and knobs to the following positions to make adjustment unless otherwise specified.
  INPUT SELECT switch .... LINE
  AUDIO MONITOR .... STEREO

[Adjustment Sequence]

1. **AF Switching Position Adjustment**
2. **Frequency Response Check**
3. **Overall Level Characteristic and Distortion Factor Check**
4. **Overall S/N Check**

1. AF Switching Position Adjustment (MA-350 BOARD)

Purpose:

Adjust the interval between A CH and B CH of tape playback output. Improve the interchangeability with other tapes and sets. When it is out of order, noisy sound is increased and big noise is heard.

Mode	PB
Signal	Alignment tape SP mode color bar
Measurement point	CH1: Pin ③ of CN203 CH2: Pin ① of CN203
Measuring Instrument	Oscilloscope
Specified Value	Fig. 7-2-5

Adjusting Method:

1) Connect MA-350 board JS450 to the GND for about 1 second to activate the RF switching position adjustment mode.
2) Press the record button to activate the AF switching position adjustment mode.
3) Check appear “A H” on FL display.
4) Using the channels + and – buttons, minimize a chipped portion. At this time, confirm that a noisy sound is not heard.
5) Press the pause button.

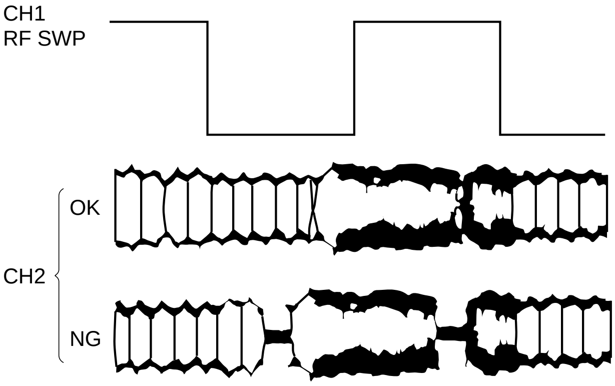


Fig. 7-2-5.

2. Frequency Response Check

Purpose:

Confirm that the frequency characteristic is within the specification.

Mode	REC and PB (SP, LP mode)
Signal	400 Hz, –7.5 dBs 20 Hz, –7.5 dBs 20 kHz, –7.5 dBs
Measurement point	Audio output terminal
Measurement equipment	Audio level meter
Specified value	0 ± 2 dB

Note: Tape path adjustment must have been completed.

Confirmation Method:

1) Supply a signal of 400 Hz, –7.5 dBs to both L and R channels of Audio Line Input.
2) Connect the audio level meter to the Audio Line Output.
3) Adjust the attenuator so that the audio level meter will indicate –7.5 dBs.
4) Make recording.
5) Set an audio line input signal to 20 Hz and make recording.
6) Set an audio line input signal to 20 kHz and make recording.
7) Playback a recorded portion, and measure output levels at 400 Hz and 20 Hz and 20 kHz.
8) Confirm that the 20 Hz and 20 kHz playback output level within a range of the 400 Hz playback output level 0 ± 2 dB.

3. Overall Level Characteristic and Distortion Factor Check

Purpose:
Check the record level, play level, and distortion factor against the reference input.

Mode	REC and PB (SP mode)
Signal	400 Hz, –7.5 dBs
Measurement point	Audio output terminal
Measurement equipment	Audio level meter and distortion factor meter
Specified value	Playback level: –7.5 ± 2.0 dBs Distortion factor: 1% or less

Confirmation Method:
1) Supply an audio signal of 400 Hz, –7.5 dBs simultaneously to both L and R channels of Audio Line Input.
2) Make recording
3) Play back a recorded portion.
4) Confirm that a playback level is –7.5 ±2.0 dBs.
5) Confirm that a distortion factor is within 1%.

4. Overall S/N Check

Purpose:
Confirm that the S/N is within the specification.

Mode	REC and PB (SP mode)
Signal	Short
Measurement point	Audio output terminal
Measurement equipment	Audio noise meter
Specified value	–67.5 dBs or less

Confirmation Method:
1) Connect both L and R channels of audio line input to the GND.
2) Start recording.
3) Play the recorded part to confirm that the noise is below –67.5 dBs.

2-4-2. Normal Audio System Adjustment

- Make adjustment in the SP mode, unless otherwise specified. Use a normal VHS cassette for an adjustment tape.
- Set AUDIO MONITOR to normal.

[Adjustment Sequence]
1. **ACE Head Adjustment**
2. **E-E Output Level Check**
3. **Frequency Response Check**
4. **Overall Level Characteristic and Distortion Factor Check**
5. **Overall S/N Check**

1. ACE Head Adjustment

Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT VI.

2. E-E Output Level Check (SLV-ED10/ED40/EZ10/EZ40)

Purpose:
Confirm that the output level against the reference input is within the specification.

Mode	E-E
Signal	L, R: 400 Hz, –7.5 dBs
Measurement point	Audio output terminal
Measurement equipment	Audio level meter
Specified value	–7.5 ± 3.0 dBs

Confirmation Method:
1) Simultaneously input a signal of 400 Hz, –7.5 dBs to both L and R channels of Audio Line Input.
2) Confirm that the audio output level is –7.5 ± 3.0 dBs.
(This level only can appear with mono models)

3. Frequency Response Check

Purpose:
Confirm that the frequency characteristic is within the specification.

Mode	REC and PB (SP mode)
Signal	400 Hz, –17.5 dBs 7 kHz, –17.5 dBs
Measurement point	Audio output terminal
Measurement equipment	Audio level meter
Specified value	2.5 ± 4.0 dB

Tape path adjustment must have been completed.

Confirmation Method:
1) Supply a signal of 400 Hz, –17.5 dBs to both L and R channels of Audio Line Input.
2) Connect the audio level meter to the Audio Line Output.
3) Adjust the attenuator so that the audio level meter will indicate –17.5 dBs.
4) Make recording in the SP mode.
5) Set an audio line input signal to 7 kHz and make recording.
6) Playback a recorded portion, and measure output levels at 400 Hz and 7 kHz.
7) Confirm that the 7 kHz playback output level within a range of the 400 Hz playback output level 2.5 ± 4.0 dB.

4. Overall Level Characteristic and Distortion Factor Check

Purpose:
Check the record level, play level, and distortion factor against the reference input.

Mode	REC and PB (SP mode)
Signal	400 Hz, –7.5 dBs
Measurement point	Audio output terminal
Measurement equipment	Audio level meter and distortion factor meter
Specified value	Playback level: –7.5 ± 4.0 dBs Distortion factor: 4% or less

Confirmation Method:
1) Supply an audio signal of 400 Hz, –7.5 dBs simultaneously to both L and R channels of Audio Line Input.
2) Make recording
3) Play back a recorded portion.
4) Confirm that a playback level is –7.5 ± 4.0 dBs.
5) Confirm that a distortion factor is within 4%.

5. Overall S/N Check

Purpose:
Confirm that the S/N is within the specification.

Mode	REC and PB (SP mode)
Signal	Short
Measurement point	Audio output terminal
Measurement equipment	Audio noise meter
Specified value	–46.0 dBs or less

Confirmation Method:
1) Connect both L and R channels of audio line input to the GND.
2) Start recording.
3) Play the recorded part to confirm that the noise is below –46.0 dBs.

2-5. TUNER SYSTEM ADJUSTMENT

[Connection]

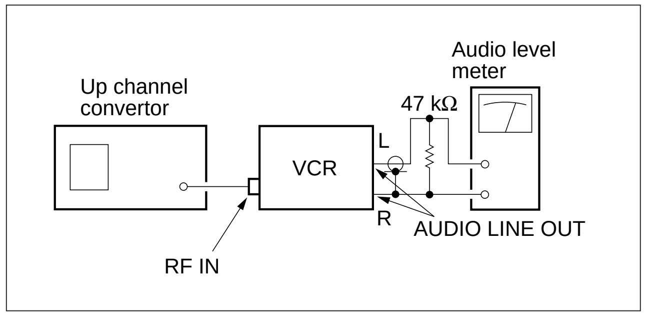


Fig. 7-2-6

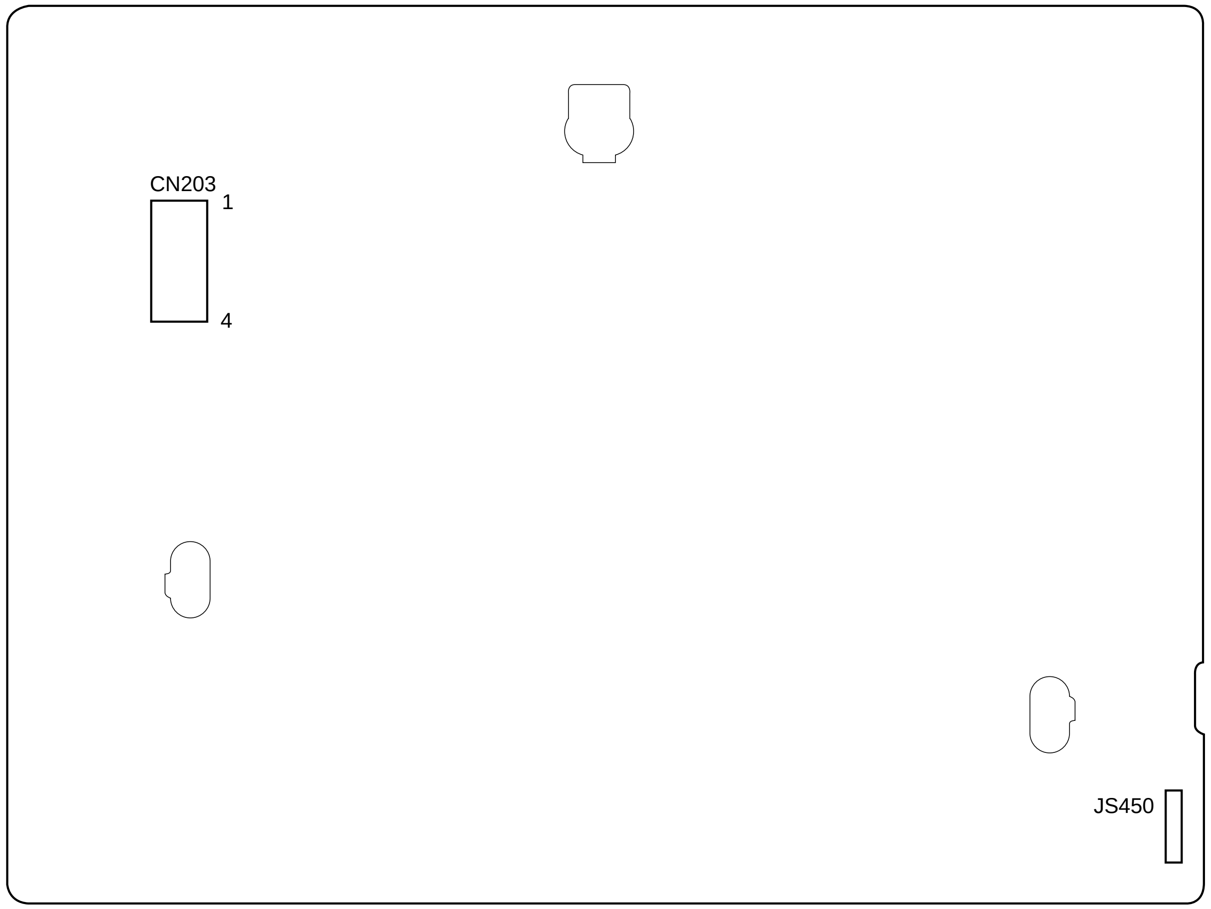
2-5-1. Separation Adjustment (SLV-EZ70:AS)

Purpose:
Mixed audio signal separate Lch and Rch.

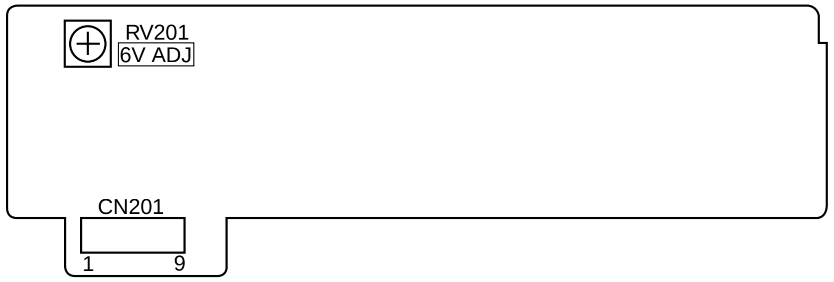
Mode	E-E
Signal	VIDEO: color bar (White 100% modulation) AUDIO: L NONE R 1 kHz 60% modulation ELECTRIC FIELD: 60–80 dBs/75 Ω Term
Measurement point	Audio output terminal
Measurement equipment	Audio level meter
Adjusting Element	RV001
Specified value	minimum

2-6. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS

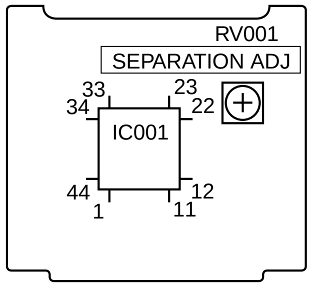
MA-350 BOARD (Side A)



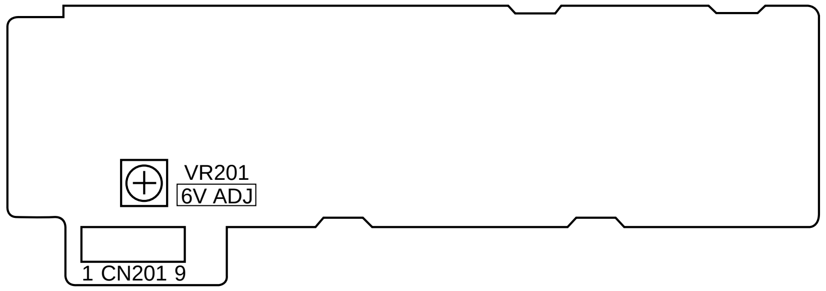
HS-921SF/921SF1 BOARD (Side A)



GK-12 BOARD (Side A)



SR-708/718 BOARD (Side A)



SECTION 8
REPAIR PARTS LIST

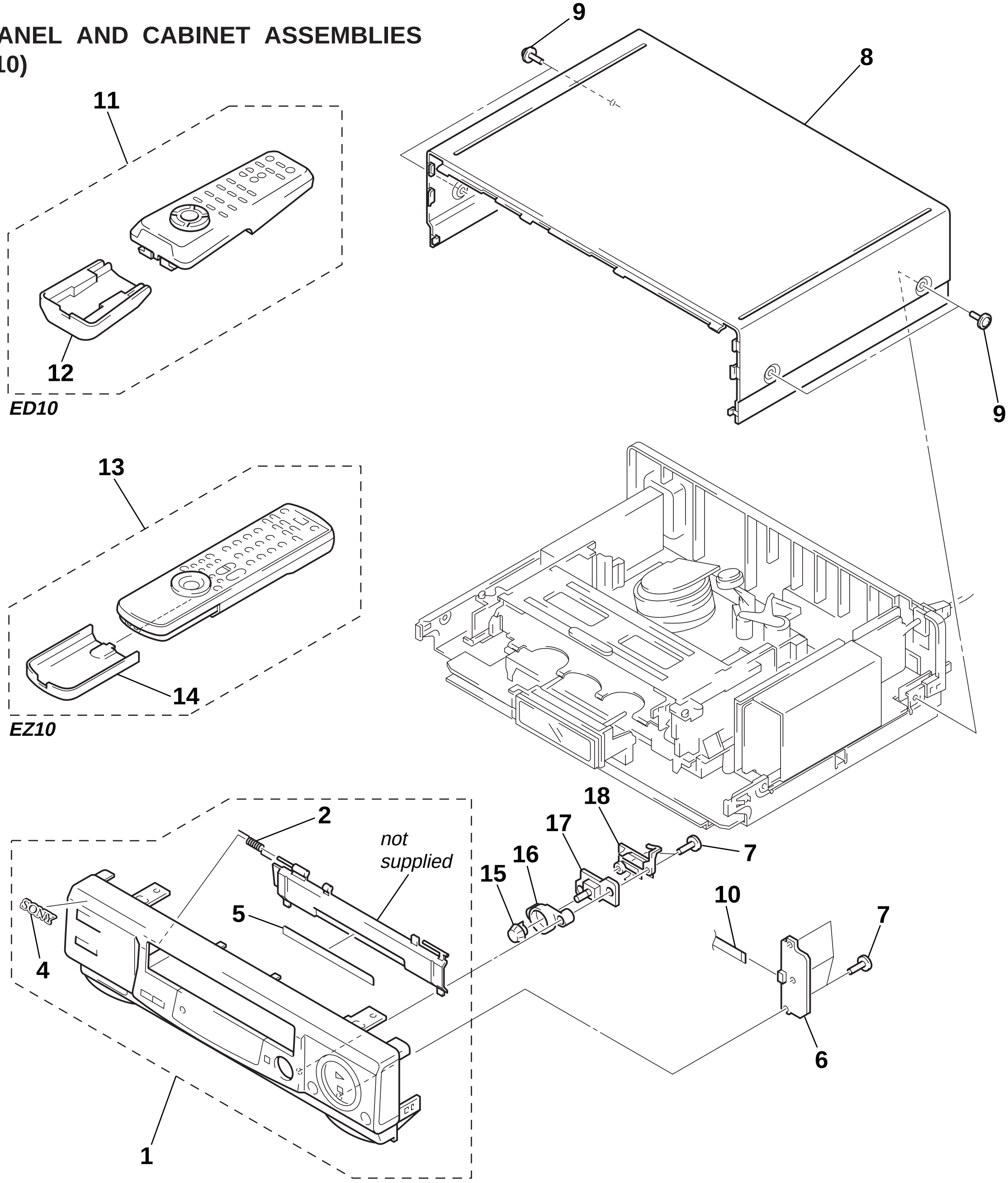
8-1. EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

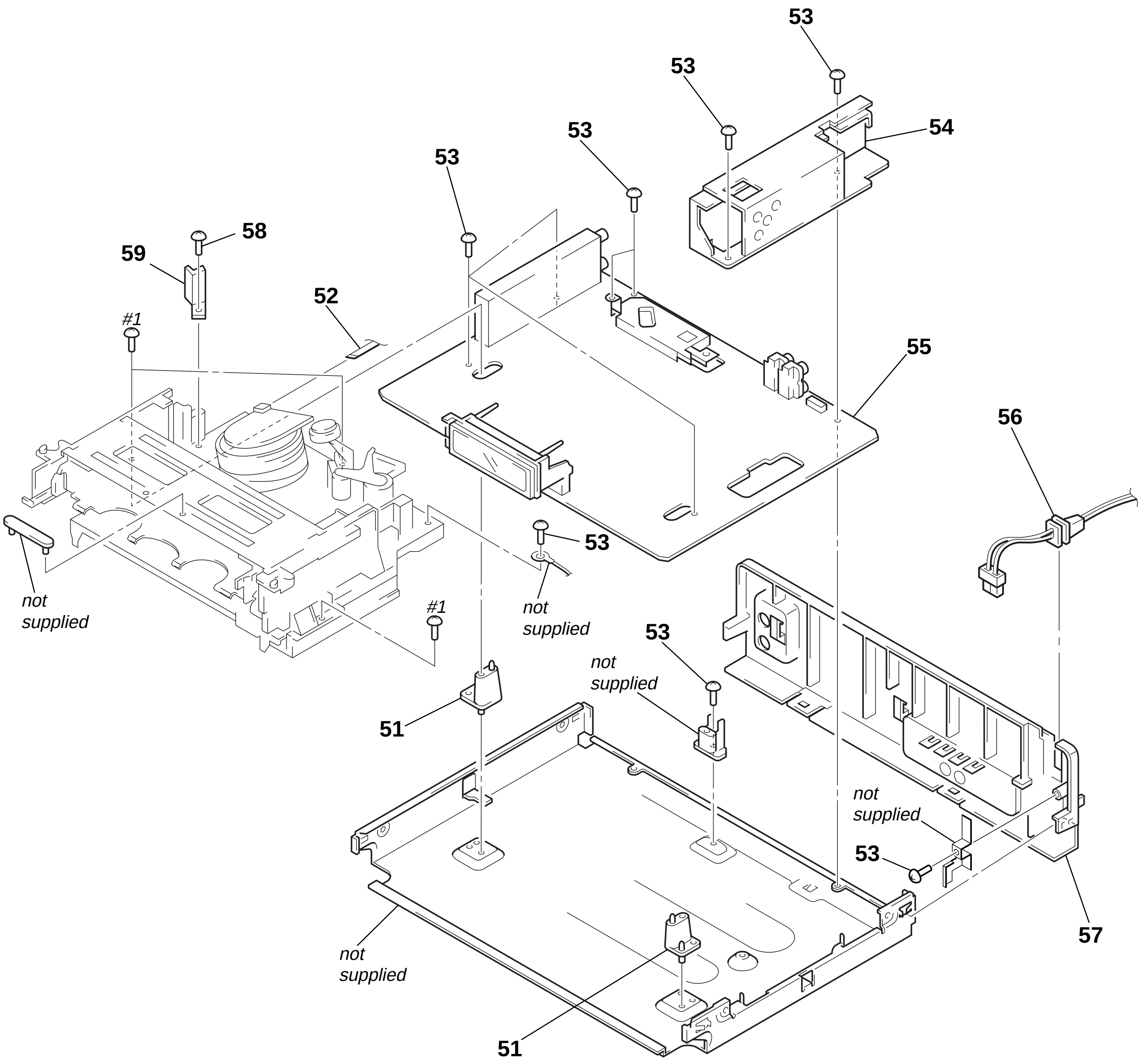
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

8-1-1. FRONT PANEL AND CABINET ASSEMBLIES (ED10/EZ10)



Ref. No.	Part No.	Description	Remark
1	X-3949-480-1	PANEL ASSY, FRONT (ED10:ME,PS,SG)	
1	X-3949-482-1	PANEL ASSY, FRONT (EZ10)	
1	X-3949-550-1	PANEL ASSY, FRONT (ED10: MPS)	
2	3-953-432-01	SPRING (GE), FL	
4	3-943-995-01	EMBLEM (NO.5), SONY	(ED10: ME, PS, SG/EZ10)
4	3-943-995-31	EMBLEM (NO.5), SONY (ED10: MPS)	
5	3-053-240-21	PLATE, DOOR ORNAMENTAL	
* 6	A-6796-662-A	DS-85 BOARD, COMPLETE	
7	4-921-277-41	SCREW (B2.6X8), TAPPING, BIND	
8	3-053-078-41	CASE, UPPER (ED10: ME, PS, SG/EZ10)	
8	3-053-078-31	CASE, UPPER (ED10: MPS)	
9	3-710-901-01	SCREW, TAPPING (ED10: MPS)	
9	3-710-901-11	SCREW, TAPPING (ED10: ME, PS, SG/EZ10)	
10	1-790-537-11	CABLE, FLAT (FFC) (FDS-5)	
11	1-418-160-11	COMMANDER, STANDARD (RMT-V248C)	(ED10)
12	3-709-322-01	COVER, BATTERY (for RMT-V248C) (ED10)	
13	1-475-614-21	COMMANDER, STANDARD (RMT-V245A)	(EZ10)
14	3-709-128-01	COVER, BATTERY (for RMT-V245A) (EZ10)	
15	3-054-386-01	KNOB, ETR	
16	3-054-384-01	ESCUTCHEON, ETR	
* 17	A-6796-661-A	KK-18 BOARD, COMPLETE	
18	3-054-385-01	HOLDER, ETR	

8-1-2. CHASSIS ASSEMBLY (ED10/EZ10)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59
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56
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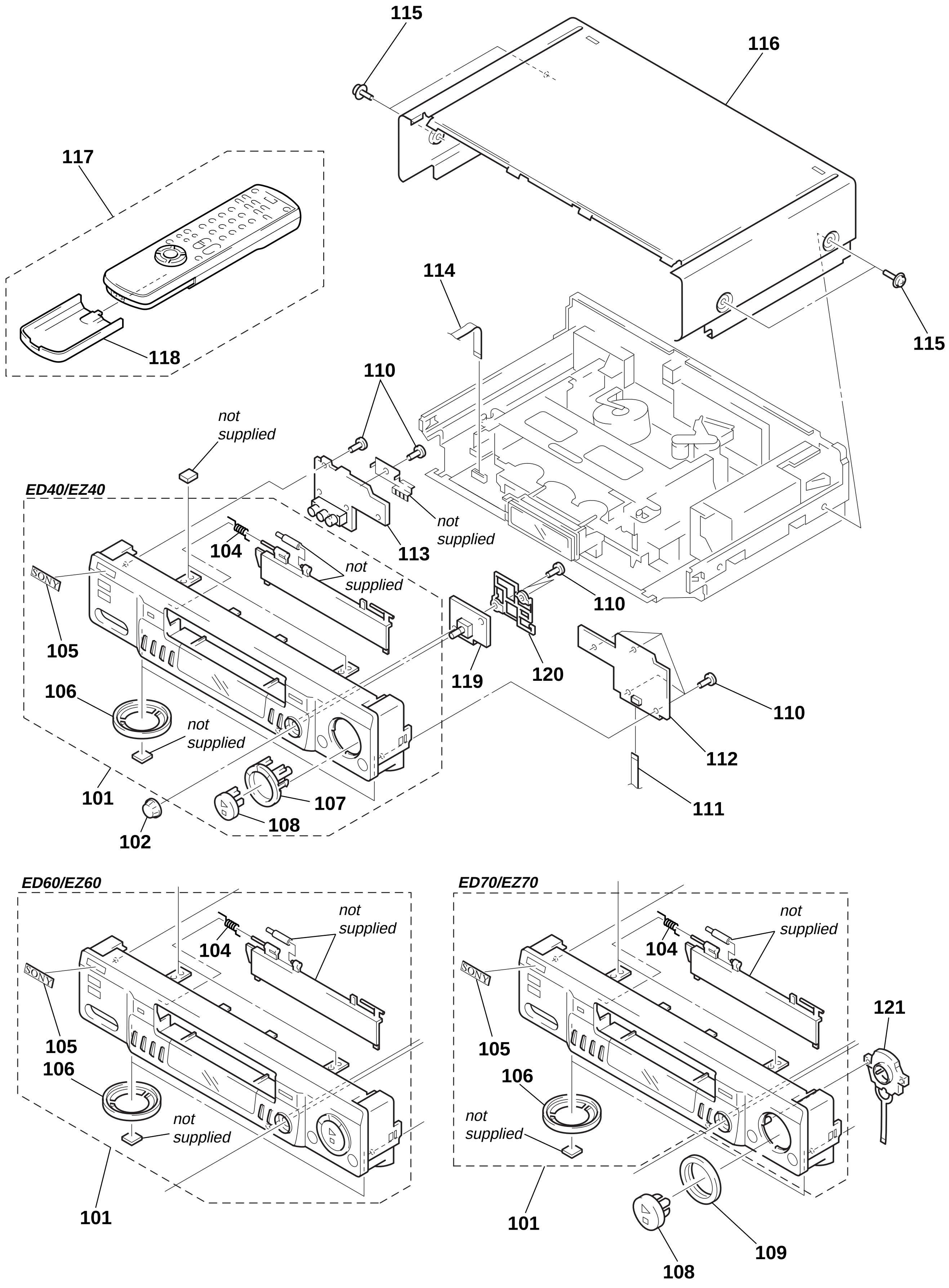
#1
not supplied
53
not supplied
51
not supplied
53
57
not supplied
51

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 51	3-959-383-02	BASE (R), MD	
52	1-790-536-11	CABLE, FLAT(FFC) (FMD-13)	
53	3-970-608-21	SUMITITE (B3), +BV	
54	1-468-311-11	POWER BLOCK (SR-718) (EZ10)	
54	1-468-312-12	POWER BLOCK (HS-921SF) (ED10)	
* 55	A-6796-660-A	MA-350 BOARD, COMPLETE (ED10: PS, MPS)	
* 55	A-6796-663-A	MA-350 BOARD, COMPLETE (EZ10)	
* 55	A-6796-664-A	MA-350 BOARD, COMPLETE (ED10: ME, SG)	
⚠56	1-777-854-21	CORD, POWER (ED10)	
⚠56	1-777-855-22	CORD, POWER (EZ10)	
* 57	3-979-652-51	PANEL (M), REAR (EZ10)	
* 57	3-979-652-61	PANEL (M), REAR (ED10)	
58	3-979-112-01	SCREW SW (+) BVTP 3X10	
59	X-3947-568-1	TC (N17S) ASSY	

8-1-3. FRONT PANEL AND CABINET ASSEMBLIES (ED40/ED60/ED70/EZ40/EZ60/EZ70)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SONY
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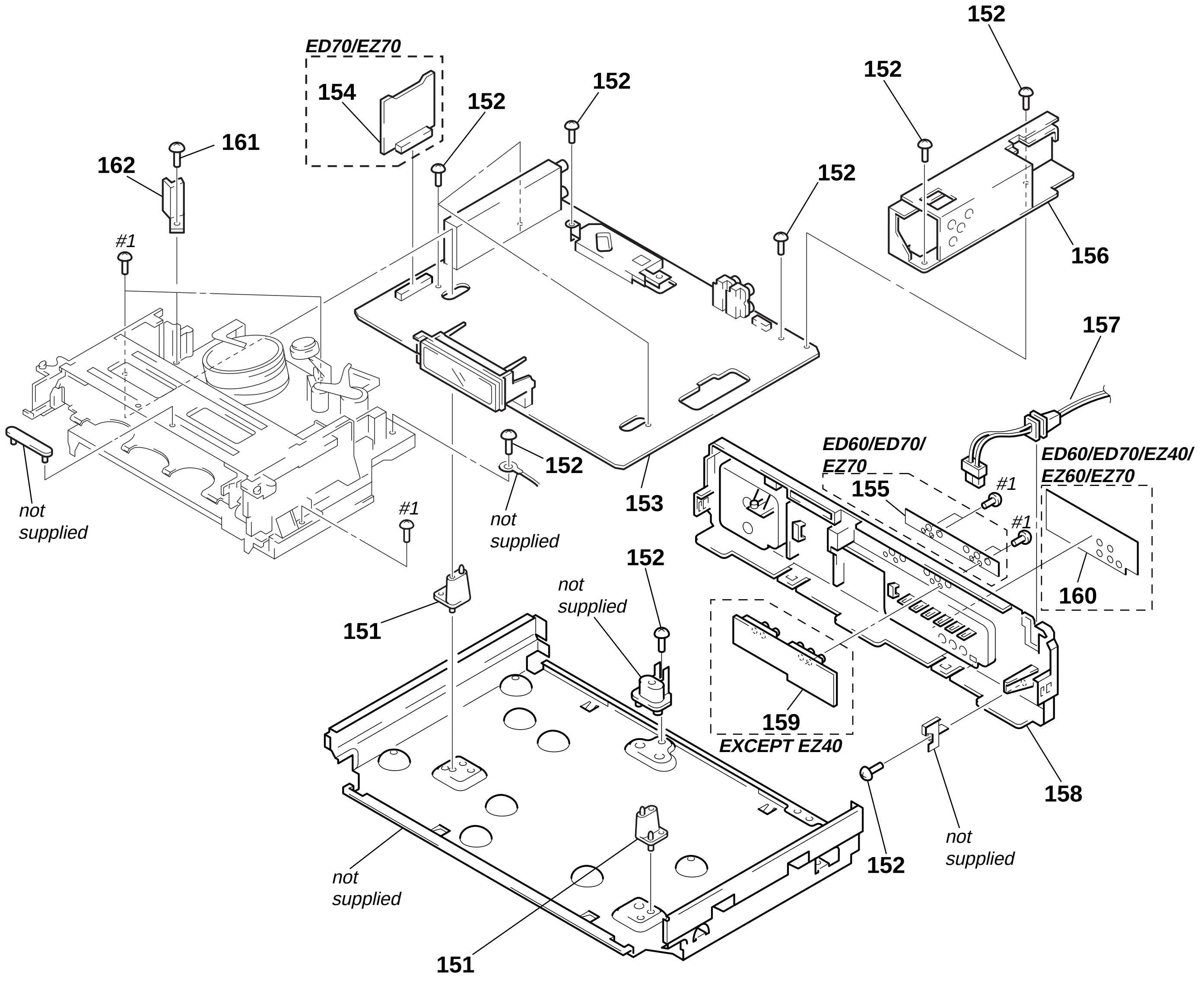
120
110
106
not supplied
110
112
101
107
102
108
111
ED60/EZ60
not supplied
104
SONY
105
106
not supplied
101
ED70/EZ70
not supplied
104
121
SONY
105
106
not supplied
101
109
108

Ref. No.	Part No.	Description	Remark
101	X-3949-341-1	PANEL, ASSY FRONT (EZ40)	
101	X-3949-342-1	PANEL, ASSY FRONT (ED40)	
101	X-3949-343-1	PANEL, ASSY FRONT (ED60)	
101	X-3949-344-1	PANEL, ASSY FRONT (EZ60)	
101	X-3949-345-1	PANEL, ASSY FRONT (ED70)	
101	X-3949-346-1	PANEL, ASSY FRONT (EZ70: AS)	
101	X-3949-347-1	PANEL, ASSY FRONT (EZ70: NZ)	
102	3-052-763-01	KNOB, ETR (P5) (EXCEPT ED40/EZ40)	
102	3-052-763-11	KNOB, ETR (P5) (ED40/EZ40)	
104	3-953-432-01	SPRING (GE), FL	
105	3-943-995-01	EMBLEM (NO.5), SONY (ED40/EZ40)	
105	3-943-995-31	EMBLEM (NO.5), SONY (EXCEPT ED40/EZ40)	
* 106	3-977-160-01	INSULATOR	
107	3-987-816-01	RING, BUTTON (ED40/EZ40)	
108	3-972-518-11	BUTTON, CENTER (ED40/EZ40)	
108	3-979-309-61	BUTTON (AV), CENTER (ED70/EZ70)	
109	3-988-327-21	RING (M), JOG (ED70/EZ70)	
110	4-921-277-41	SCREW (B2.6X8), TAPPING, BIND	
111	1-790-533-11	CABLE, FLAT (FFC) (FDM-6)	
* 112	A-6791-859-A	DM-85 BOARD, COMPLETE (EXCEPT ED70/EZ70)	
* 112	A-6791-873-A	DM-85 BOARD, COMPLETE (ED70/EZ70)	
* 113	A-6791-860-A	MF-317 BOARD, COMPLETE (ED60)	
* 113	A-6791-865-A	MF-317 BOARD, COMPLETE (EZ40/EZ60)	
* 113	A-6791-868-A	MF-317 BOARD, COMPLETE (ED40)	
* 113	A-6791-874-A	MF-317 BOARD, COMPLETE (ED70)	
* 113	A-6791-877-A	MF-317 BOARD, COMPLETE (EZ70)	
114	1-790-534-11	CABLE, FLAT (FFC) (FMF-36) (ED60/EZ40/EZ60)	
114	1-790-535-11	CABLE, FLAT (FFC) (FMF-33) (ED40/ED70/EZ70)	
115	3-710-901-01	SCREW, TAPPING (EXCEPT ED40/EZ40)	
115	3-710-901-11	SCREW, TAPPING (ED40/EZ40)	
116	3-979-313-61	CASE, UPPER (EXCEPT ED40/EZ40)	
116	3-979-313-81	CASE, UPPER (ED40/EZ40)	
117	1-418-159-11	COMMANDER, STANDARD (RMT-V245C) (EZ60)	
117	1-418-161-11	COMMANDER, STANDARD (RMT-V247C) (ED60)	
117	1-418-161-21	COMMANDER, STANDARD (RMT-V247D) (ED70)	
117	1-475-614-11	COMMANDER, STANDARD (RMT-V245) (EZ70)	
117	1-475-614-21	COMMANDER, STANDARD (RMT-V245A) (EZ40)	
117	1-475-616-11	COMMANDER, STANDARD (RMT-V247) (ED40)	
118	3-709-128-01	COVER, BATTERY (for RMT-V245/V245A/V245C) (EZ40/EZ60/EZ70)	
118	3-709-133-11	COVER, BATTERY (for RMT-V247/V245C/V247D) (ED40/ED60/ED70)	
* 119	A-6791-861-A	KK-19 BOARD, COMPLETE	
120	3-052-765-01	HOLDER, ETR (P5)	
121	1-762-844-21	SWITCH, ROTARY (ED70/EZ70)	

8-1-4. CHASSIS ASSEMBLY (ED40/ED60/ED70/EZ40/EZ60/EZ70)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ED70/EZ70
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156
157
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not supplied
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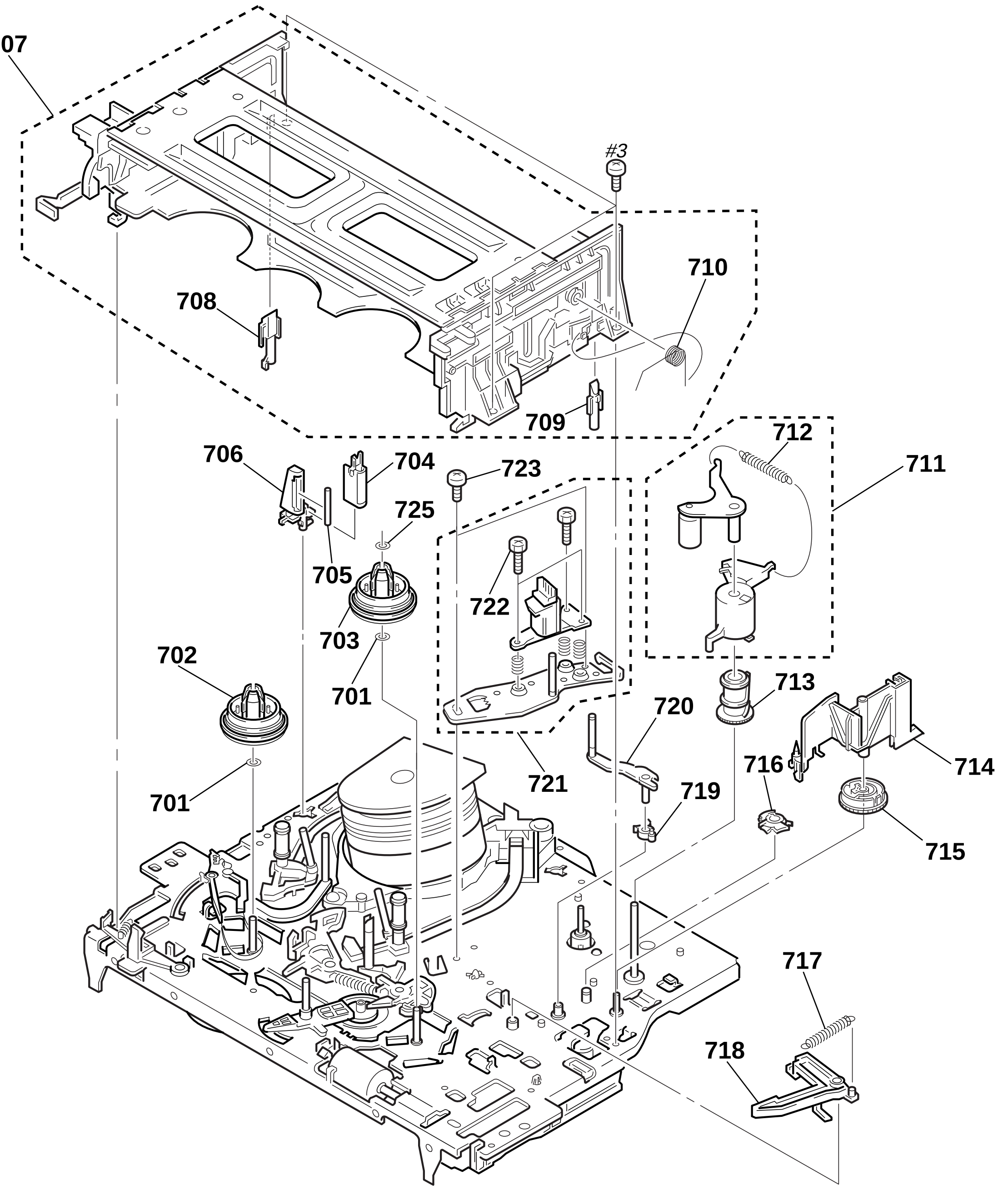
#1
ED60/ED70/EZ70
155
#1
#1
ED60/ED70/EZ40/EZ60/EZ70
160
152
not supplied
151
159
EXCEPT EZ40
158
152
not supplied
not supplied
151

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 151	3-959-383-02	BASE (R), MD	
152	3-970-608-21	SUMITITE (B3), +BV	
* 153	A-6791-857-A	MA-350 BOARD, COMPLETE (ED60: PS)	
* 153	A-6791-862-A	MA-350 BOARD, COMPLETE (ED60: ME, SG)	
* 153	A-6791-863-A	MA-350 BOARD, COMPLETE (EZ60)	
* 153	A-6791-866-A	MA-350 BOARD, COMPLETE (ED40: PS)	
* 153	A-6791-869-A	MA-350 BOARD, COMPLETE (ED40: ME, SG)	
* 153	A-6791-870-A	MA-350 BOARD, COMPLETE (EZ40)	
* 153	A-6791-872-A	MA-350 BOARD, COMPLETE (ED70)	
* 153	A-6791-875-A	MA-350 BOARD, COMPLETE (EZ70: AS)	
* 153	A-6791-878-A	MA-350 BOARD, COMPLETE (EZ70: NZ)	
* 154	A-6791-591-A	NK-11 BOARD, COMPLETE (ED70/EZ70: NZ)	
* 154	A-6791-880-A	GK-12 BOARD, COMPLETE (EZ70: AS)	
155	3-987-913-42	PLATE, REAR JACK B (ED60/ED70/EZ70: AS)	
155	3-987-913-62	PLATE, REAR JACK B (EZ70: NZ)	
156	1-468-311-21	POWER BLOCK (SR-708) (EZ40/EZ60/EZ70)	
156	1-468-312-22	POWER BLOCK (HS-921SF1) (ED40/ED60/ED70)	
⚠157	1-777-854-21	CORD, POWER (ED40/ED60/ED70)	
⚠157	1-777-855-22	CORD, POWER (EZ40/EZ60/EZ70)	
* 158	3-977-139-51	PANEL, REAR (EXCEPT EZ40)	
* 158	3-977-139-61	PANEL, REAR (EZ40)	
* 159	A-6791-858-A	RJ-82 BOARD, COMPLETE (ED60/ED70)	
* 159	A-6791-864-A	RJ-82 BOARD, COMPLETE (EZ60)	
* 159	A-6791-867-A	RJ-82 BOARD, COMPLETE (ED40)	
* 159	A-6791-876-A	RJ-82 BOARD, COMPLETE (EZ70: AS)	
* 159	A-6791-879-A	RJ-82 BOARD, COMPLETE (EZ70: NZ)	
160	3-987-912-61	PLATE, REAR JACK A (ED60/ED70/EZ70)	
160	3-987-912-31	PLATE, REAR JACK A (EZ40)	
160	3-987-912-71	PLATE, REAR JACK A (EZ60)	
161	3-979-112-01	SCREW SW (+) BVTP 3X10	
162	X-3947-568-1	TC (N17S) ASSY	

8-1-5. MECHANISM CHASSIS ASSEMBLY (1)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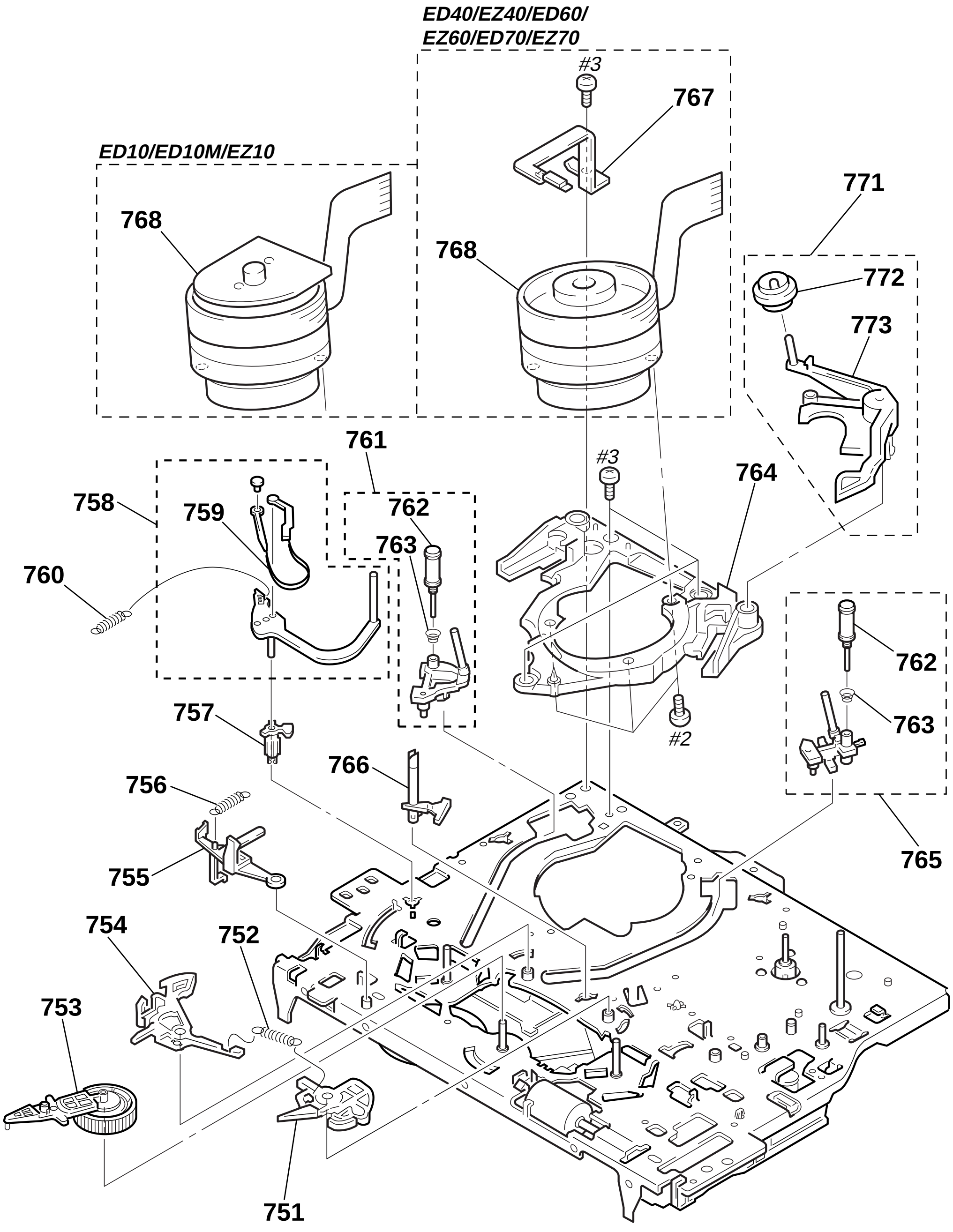
Ref. No.	Part No.	Description	Remark
701	3-977-509-01	WASHER, THRUST	
702	3-977-507-01	TABLE, REEL (S)	
703	3-977-508-01	TABLE, REEL (T)	
704	1-500-144-11	HEAD, FE	
705	3-977-495-01	SHAFT TG2	
706	3-977-494-01	HOLDER, FEH	
707	A-6759-619-B	FL COMPLETE ASSY	
708	3-977-535-01	PLATE, LUMINOUS (END SENSOR)	
709	3-977-536-01	PLATE, LUMINOUS (TOP SENSOR)	
710	3-970-471-01	SPRING (DECK OPEN), TORSION	
711	A-6759-615-A	PRESS BLOCK ASSY, PINCH	
712	3-958-455-01	SPRING (PINCH), TENSION	
713	3-977-447-01	GEAR, ELEVATOR	
714	3-977-514-01	OPENER, LID	
715	3-977-441-01	GEAR, PINCH PRESSING	
716	3-977-445-01	GEAR, TG8 ARM DRIVING	
717	3-977-465-01	SPRING, EXTENSION (RVS BRAKE)	
718	X-3947-582-1	ARM ASSY, RVS BRAKE	
719	3-977-446-01	GEAR, TG8 ARM	
720	X-3947-590-1	TG8 ASSY	
721	A-6759-620-A	HEAD BLOCK ASSY, ACE (TDK)	
722	3-974-556-01	+ HEXA TT 2.6X9 (TAPER)	
723	3-979-508-01	SCREW +HEXA TP SW 3X8	
725	3-977-443-01	WASHER, STOPPER	

8-1-6. MECHANISM CHASSIS ASSEMBLY (2)


ED40/EZ40/ED60/
EZ60/ED70/EZ70
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ED10/ED10M/EZ10
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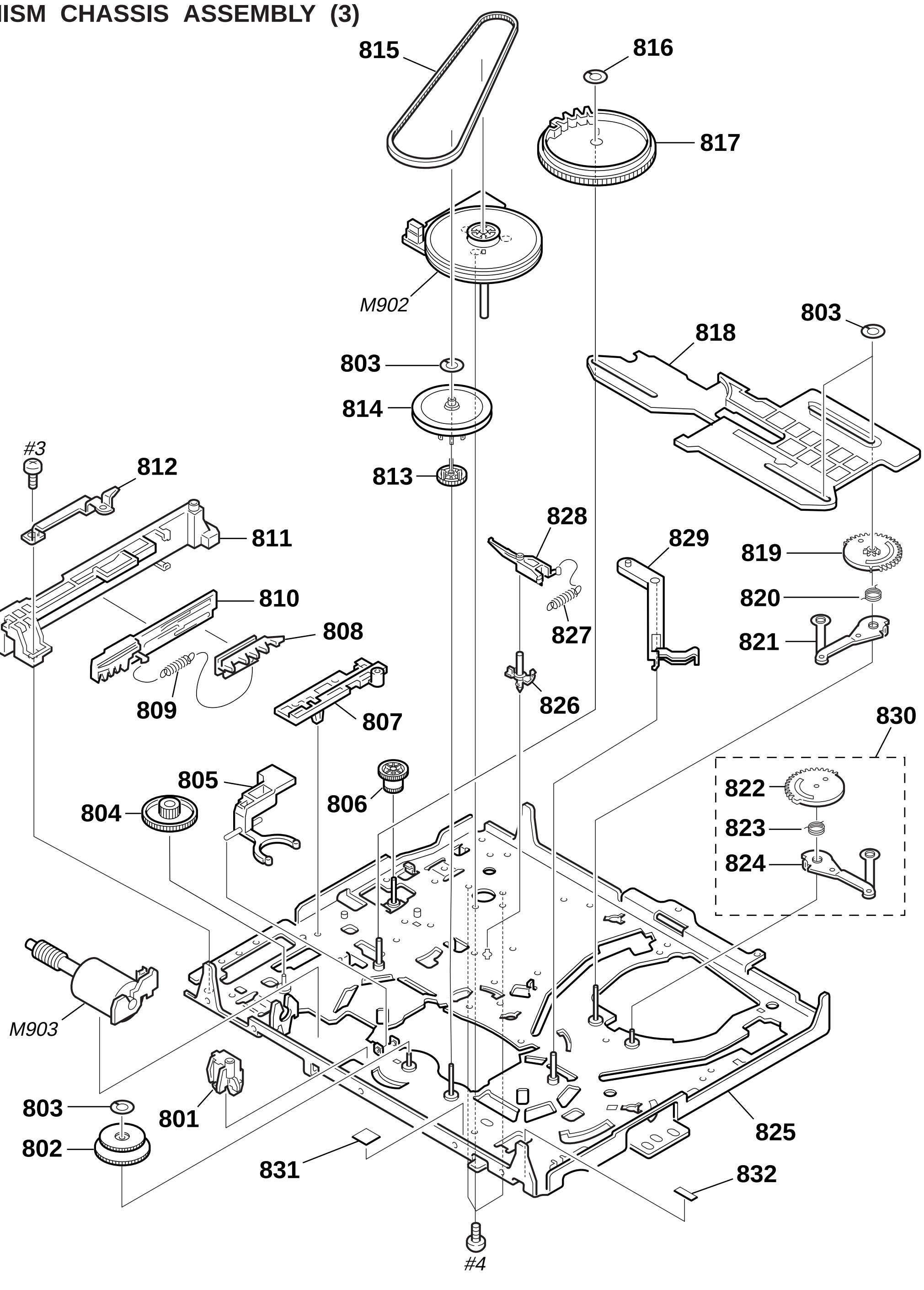
Ref. No.	Part No.	Description	Remark
751	X-3947-581-1	BRAKE ASSY, MAIN (T)	
752	3-977-462-01	SPRING, EXTENTION. (MAIN BRAKE)	
753	X-3947-573-1	ARM ASSY, PENDULUM	
754	X-3947-580-2	BRAKE ASSY, MAIN (S)	
755	3-977-513-02	LEVER, REC. PROOF	
756	3-976-767-01	SPRING, TENS. (REC. PROOF)	
757	3-977-487-01	BOSS, TG1 FULCRUM	
758	X-3947-587-1	TG1 ASSY	
759	X-3947-589-1	BAND ASSY, TG1	
760	3-977-488-01	SPRING (POWER TENSION)	
761	A-6750-324-A	SHUTTLE (S) BLOCK ASSY	
762	X-3944-378-1	ROLLER ASSY, GUIDE	
763	3-965-178-01	SPRING	
764	3-969-632-04	BASE, DRUM	
765	A-6750-328-E	SHUTTLE (T) BLOCK ASSY	
766	3-977-501-01	PLATE, LUMINOUS	
767	X-3943-899-8	GROUND ASSY, SHAFT (EXCEPT ED10/EZ10)	
768	1-759-453-11	DRUM ASSY DZH-89A-R (ED10/EZ10)	
768	8-839-037-04	DRUM ASSY DZH-74E/Z-RP (ED40/EZ40)	
768	8-839-045-02	DRUM ASSY DZH-95A/Z-RP (ED60/ED70/EZ60/EZ70)	
771	A-6746-074-G	ROLLER BLOCK ASSY, HC	
772	X-3947-255-1	ROLLER ASSY, HC	
773	3-975-724-07	ARM, HC	

8-1-7. MECHANISM CHASSIS ASSEMBLY (3)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816
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M902
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#3
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826
807
830
805
804
806
822
823
824
M903
803
801
825
802
831
832
#4

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
801	3-977-437-01	RETAINER, CAM MOTOR		818	3-977-442-01	SLIDER	
802	X-3947-584-1	ASSY, REEL DIRECT		819	3-977-455-01	GEAR, LOADING (T)	
803	3-977-443-01	WASHER, STOPPER		820	3-977-456-03	SPRING, TORSION (LOAD T)	
804	3-977-438-01	WORM - WHEEL		821	X-3947-579-1	LEVER ASSY, LOADING (T)	
805	3-977-506-01	ARM, LIMITTER SELECTION		822	3-977-451-01	GEAR, LOADING (S)	
806	3-977-444-01	GEAR, PINCH TRANSMISSION		823	3-977-452-01	SPRING, TORSION (LOAD S)	
807	3-977-515-01	GUIDE, FL SLIDER		824	X-3947-578-1	LEVER ASSY, LOADING (S)	
808	3-977-517-01	PLATE, SLIDE, FL		825	X-3947-576-2	CHASSIS ASSY, MECHANICAL	
809	3-977-519-01	SPRING, TENS. (LIMIT, FL)		826	3-977-468-01	SHAFT, CAPSTAN BRAKE	
810	3-977-518-02	PLATE, LIMITTER, FL		827	3-977-467-02	SPRING, CAP BRAKE	
811	3-977-516-01	HOLDER, FL SLIDER		828	X-3947-583-1	BRAKE ASSY, CAPSTAN	
812	3-977-877-01	PLATE, RETAINER		829	3-977-489-01	ARM, TG1 DRIVING	
813	3-977-504-01	GEAR, CLUTCH		830	A-6759-616-A	GEAR BLOCK ASSY, LOADING (S)	
814	X-3947-585-1	GEAR ASSY, PULLEY		831	3-989-917-01	SPACER (REC PROOF)	
815	3-977-510-01	BELT, RUBBER		832	3-052-730-01	SPACER (REC PROOF) (W4.5)	
816	3-977-440-01	WASHER, STOPPER		M902	1-698-971-11	MOTOR, DC (CAPSTAN)	
817	3-977-439-01	GEAR, CAM		M903	X-3947-577-1	MOTOR ASSY, CAM	

8-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . uPA. . : μPA. .
  uPB. . : μPB. . uPC. . : μPC. .
  uPD. . : μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH
- Not all of the parts for POWER BLOCK HS-921SF/921SF1, SR-708/718 are listed.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-6791-859-A	DM-85 BOARD, COMPLETE (ED40/ED60/EZ40/EZ60)			
*	A-6791-873-A	DM-85 BOARD, COMPLETE (ED70/EZ70)			
		********************* (Ref.No.2,000 Series)			
		< CONNECTOR >			
* CN441	1-750-737-11	CONNECTOR, FFC/FPC 5P (ED70/EZ70)			
CN442	1-784-449-11	CONNECTOR, FFC/FPC 7P			
		< JUMPER RESISTOR >			
JR401	1-216-296-00	METAL CHIP	0	5%	1/8W
		< RESISTOR >			
R442	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R443	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R444	1-216-295-00	METAL CHIP	0	5%	1/10W
R445	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R446	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R447	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
		< SWITCH >			
S441	1-762-196-21	SWITCH, TACT (⏏ EJECT)			
S442	1-762-196-21	SWITCH, TACT (◀◀ REW)(ED70/EZ70)			
S443	1-762-196-21	SWITCH, TACT (▶▶ FF)(ED70/EZ70)			
S444	1-762-196-21	SWITCH, TACT (❚❚ PAUSE)			
S445	1-762-196-21	SWITCH, TACT (● REC)			
S447	1-762-196-21	SWITCH, TACT (◀◀ REW) (ED40/ED60/EZ40/EZ60)			
S448	1-762-196-21	SWITCH, TACT (▶▶ FF) (ED40/ED60/EZ40/EZ60)			
S449	1-762-196-21	SWITCH, TACT (■ STOP) (ED40/ED60/EZ40/EZ60)			
S450	1-762-196-21	SWITCH, TACT (▷ PLAY) (ED40/ED60/EZ40/EZ60)			
*	A-6796-662-A	DS-85 BOARD, COMPLETE (ED10/EZ10)			
		********************* (Ref.No.1,000 Series)			
		< CONNECTOR >			
* CN502	1-750-737-11	CONNECTOR, FFC/FPC 5P			
		< RESISTOR >			
R501	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R502	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R503	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
		< SWITCH >			
S501	1-762-196-21	SWITCH, TACT (▶▶ FF)			
S502	1-762-196-21	SWITCH, TACT (▷ PLAY)			
S503	1-762-196-21	SWITCH, TACT (■ STOP)			
S504	1-762-196-21	SWITCH, TACT (◀◀ REW)			
*	A-6791-880-A	GK-12 BOARD, COMPLETE (EZ70: AS)			
		********************* (Ref.No.1,000 Series)			
		< CAPACITOR >			
C003	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C006	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C007	1-164-699-11	CERAMIC CHIP	0.0033uF	5%	50V
C008	1-164-699-11	CERAMIC CHIP	0.0033uF	5%	50V
C009	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C010	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C011	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C012	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C013	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C014	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C015	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C016	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C017	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C018	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C021	1-113-642-11	TANTAL. CHIP	47uF	10%	10V
C022	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C023	1-164-232-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
* CN001	1-691-183-11	CONNECTOR (BOARD TO BOARD) 13P			
		< IC >			
IC001	8-759-579-30	IC TDA9873H/V2,518			

Ref. No.	Part No.	Description			Remark
		< JUMPER RESISTOR >			
JS002	1-216-295-00	METAL CHIP	0	5%	1/10W
JS003	1-216-295-00	METAL CHIP	0	5%	1/10W
		< RESISTOR >			
R001	1-216-295-00	METAL CHIP	0	5%	1/10W
R002	1-216-295-00	METAL CHIP	0	5%	1/10W
R004	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R005	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R006	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R007	1-216-045-00	METAL CHIP	680	5%	1/10W
R008	1-216-041-00	METAL CHIP	470	5%	1/10W
R009	1-216-041-00	METAL CHIP	470	5%	1/10W
R010	1-208-803-11	RES, CHIP	7.5K	0.50%	1/10W
R011	1-216-295-00	METAL CHIP	0	5%	1/10W
R012	1-216-298-00	METAL CHIP	2.2	5%	1/10W
		< VARIABLE RESISTOR >			
RV001	1-241-783-11	RES, ADJ, CARBON 2.2K			
		< VIBRATOR >			
X001	1-781-353-11	VIBRATOR, CRYSTAL (4MHz)			

Ref. No.	Part No.	Description			Remark
*	A-6796-661-A	KK-18 BOARD, COMPLETE (ED10/EZ10)			
		*********************			
					(Ref.No.1,000 Series)
		< CONNECTOR >			
* CN511	1-568-942-11	PIN, CONNECTOR 4P			
		< JUMPER RESISTOR >			
JR511	1-216-296-00	METAL CHIP	0	5%	1/8W
		< SWITCH >			
S511	1-418-059-11	ENCODER, ROTARY (EASY TIMER)			

Ref. No.	Part No.	Description			Remark
*	A-6791-861-A	KK-19 BOARD, COMPLETE			
					(ED40/ED60/ED70/EZ40/EZ60/EZ70)
		*********************			
					(Ref.No.2,000 Series)
		< CONNECTOR >			
* CN511	1-568-942-11	PIN, CONNECTOR 4P			
		< JUMPER RESISTOR >			
JR511	1-216-296-00	METAL CHIP	0	5%	1/8W
		< SWITCH >			
S511	1-418-059-11	ENCODER, ROTARY (EASY TIMER)			
					(ED40/ED60/ED70/EZ40)
S511	1-418-059-22	ENCODER, ROTARY (EASY TIMER)			
					(EZ60/EZ70)

Ref. No.	Part No.	Description			Remark
*	A-6791-857-A	MA-350 BOARD, COMPLETE (ED60: PS)			
*	A-6791-862-A	MA-350 BOARD, COMPLETE (ED60: ME, SG)			
*	A-6791-863-A	MA-350 BOARD, COMPLETE (EZ60)			
*	A-6791-866-A	MA-350 BOARD, COMPLETE (ED40: PS)			
*	A-6791-869-A	MA-350 BOARD, COMPLETE (ED40: ME, SG)			
*	A-6791-870-A	MA-350 BOARD, COMPLETE (EZ40)			
*	A-6791-872-A	MA-350 BOARD, COMPLETE (ED70)			
*	A-6791-875-A	MA-350 BOARD, COMPLETE (EZ70: AS)			
*	A-6791-878-A	MA-350 BOARD, COMPLETE (EZ70: NZ)			
*	A-6796-660-A	MA-350 BOARD, COMPLETE (ED10: MPS, PS)			
*	A-6796-663-A	MA-350 BOARD, COMPLETE (EZ10)			
*	A-6796-664-A	MA-350 BOARD, COMPLETE (ED10: ME, SG)			
		**********************			
					(Ref.No.1,000 Series)
*	3-960-273-01	SPACER, TOP END			
*	3-960-274-01	SPACER, LED			
*	3-966-865-01	BASE, INDICATION TUBE			
		< CAPACITOR >			
C100	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C101	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C102	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C103	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C104	1-128-057-11	ELECT	330uF	20%	6.3V
C110	1-124-589-11	ELECT	47uF	20%	16V
C111	1-124-589-11	ELECT	47uF	20%	16V
					(ED10/EZ10)
C112	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C113	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C114	1-124-589-11	ELECT	47uF	20%	16V
					(ED10/EZ10)
C114	1-126-767-11	ELECT	1000uF	20%	16V
					(ED40/ED60/ED70/EZ40/EZ60/EZ70)
C115	1-124-589-11	ELECT	47uF	20%	16V
C116	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C117	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C118	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C119	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C120	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C131	1-128-499-11	ELECT	220uF	20%	16V
C132	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C133	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C161	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C162	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C163	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C164	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C165	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C166	1-104-905-11	CAPACITOR	0.22F		5.5V
					(ED10: MPS, PS/ED40: PS/ED60: PS/ED70/ EZ10/EZ40/EZ60/EZ70)
C167	1-126-925-11	ELECT	470uF	20%	10V
C168	1-127-890-11	DOUBLE LAYER	0.47F		5.5V
					(ED10: ME, SG/ED40: ME, SG/ED60: ME, SG)
C171	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C172	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C173	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C174	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C175	1-163-234-11	CERAMIC CHIP	20PF	5%	50V
C176	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C177	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C178	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C179	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C191	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C192	1-124-234-00	ELECT	22uF	20%	16V
C193	1-126-157-11	ELECT	10uF	20%	16V

Ref. No.	Part No.	Description			Remark
C194	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C195	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C196	1-163-133-00	CERAMIC CHIP	470PF	5%	50V (ED40/ED70/EZ70)
C197	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C201	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C203	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C204	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C205	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C206	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C207	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C208	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C209	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C210	1-163-243-11	CERAMIC CHIP	47PF	5%	50V (ED40/ED60/ED70/EZ40/EZ60/EZ70)
C210	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED10/EZ10)
C211	1-163-243-11	CERAMIC CHIP	47PF	5%	50V (ED40/ED60/ED70/EZ40/EZ60/EZ70)
C211	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED10/EZ10)
C213	1-126-162-11	ELECT	3.3uF	20%	50V
C214	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED40/ED60/ED70/EZ40/EZ60/EZ70)
C215	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED40/ED60/ED70/EZ40/EZ60/EZ70)
C216	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED40/ED60/ED70/EZ40/EZ60/EZ70)
C217	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED40/ED60/ED70/EZ40/EZ60/EZ70)
C219	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C220	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C221	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C222	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C223	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C224	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C225	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C226	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C227	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C230	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C231	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C232	1-163-089-00	CERAMIC CHIP	6PF		50V
C233	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C234	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C235	1-163-231-11	CERAMIC CHIP	15PF	5%	50V (ED40/ED60/ED70/EZ40/EZ60/EZ70)
C235	1-163-233-11	CERAMIC CHIP	18PF	5%	50V (ED10/EZ10)
C236	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C237	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C238	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C239	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C241	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C242	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C243	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C244	1-126-157-11	ELECT	10uF	20%	16V
C245	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C246	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C247	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C248	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C249	1-126-162-11	ELECT	3.3uF	20%	50V

Ref. No.	Part No.	Description			Remark
C250	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C251	1-126-157-11	ELECT	10uF	20%	16V
C253	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C254	1-109-982-11	CERAMIC CHIP	1uF	10%	10V (ED40/ED60/ED70/EZ70)
C255	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C256	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C259	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C262	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C264	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C265	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C266	1-164-505-11	CERAMIC CHIP	2.2uF		16V (ED40/ED60/ED70/EZ70: AS)
C267	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C269	1-163-237-11	CERAMIC CHIP	27PF	5%	50V (ED40/ED60/ED70/EZ40/EZ60/EZ70)
C269	1-163-241-11	CERAMIC CHIP	39PF	5%	50V (ED10/EZ10)
C270	1-163-237-11	CERAMIC CHIP	27PF	5%	50V (ED40/ED60/ED70/EZ40/EZ60/EZ70)
C270	1-163-241-11	CERAMIC CHIP	39PF	5%	50V (ED10/EZ10)
C274	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED40/ED60/ED70/EZ70: AS)
C275	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED40/ED60/ED70/EZ70: AS)
C301	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C302	1-124-234-00	ELECT	22uF	20%	16V
C303	1-126-163-11	ELECT	4.7uF	20%	50V
C304	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C305	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C306	1-126-163-11	ELECT	4.7uF	20%	50V
C307	1-126-157-11	ELECT	10uF	20%	16V
C308	1-126-160-11	ELECT	1uF	20%	50V (ED40)
C309	1-126-160-11	ELECT	1uF	20%	50V
C310	1-126-160-11	ELECT	1uF	20%	50V
C311	1-124-234-00	ELECT	22uF	20%	16V
C312	1-126-163-11	ELECT	4.7uF	20%	50V
C313	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C314	1-164-505-11	CERAMIC CHIP	2.2uF		16V (ED40)
C315	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C316	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C318	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C319	1-126-160-11	ELECT	1uF	20%	50V (ED60/ED70/EZ70)
C320	1-126-160-11	ELECT	1uF	20%	50V (ED40/ED60/ED70/EZ70)
C321	1-126-160-11	ELECT	1uF	20%	50V (ED40)
C322	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED40)
C323	1-124-589-11	ELECT	47uF	20%	16V
C330	1-104-697-11	FILM	0.047uF	5%	100V (ED40/ED70/EZ70)
C331	1-124-589-11	ELECT	47uF	20%	16V (ED40/ED70/EZ70)
C332	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V (ED40/ED70/EZ70)
C333	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V (ED40/ED70/EZ70)

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Ref. No.	Part No.	Description			Remark
C334	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED40/ED70/EZ70)
C335	1-104-696-11	FILM	0.015uF	5%	100V (ED10/ED60/EZ10/EZ40/EZ60)
C335	1-137-612-11	FILM	0.0068uF	5%	100V (ED40/ED70/EZ70)
C336	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C337	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C338	1-124-589-11	ELECT	47uF	20%	16V
C339	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C341	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C342	1-126-157-11	ELECT	10uF	20%	16V
C350	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED60/ED70/EZ60/EZ70)
C351	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED60/ED70/EZ60/EZ70)
C352	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (ED60/ED70/EZ60/EZ70)
C353	1-163-038-00	CERAMIC CHIP	0.1uF		25V (ED60/ED70/EZ60/EZ70)
C354	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (ED60/ED70/EZ60/EZ70)
C355	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V (ED60/ED70/EZ60/EZ70)
C356	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (ED60/ED70/EZ60/EZ70)
C357	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V (ED60/ED70/EZ60/EZ70)
C358	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (ED60/ED70/EZ60/EZ70)
C359	1-126-382-11	ELECT	100uF	20%	16V (ED60/ED70/EZ60/EZ70)
C360	1-109-982-11	CERAMIC CHIP	1uF	10%	10V (ED60/ED70/EZ60/EZ70)
C361	1-109-982-11	CERAMIC CHIP	1uF	10%	10V (ED60/ED70/EZ60/EZ70)
C362	1-109-982-11	CERAMIC CHIP	1uF	10%	10V (ED60/ED70/EZ60/EZ70)
C363	1-104-664-11	ELECT	47uF	20%	16V (ED60/ED70/EZ60/EZ70)
C369	1-126-964-11	ELECT	10uF	20%	50V (ED60/ED70/EZ60/EZ70)
C370	1-126-964-11	ELECT	10uF	20%	50V (ED60/ED70/EZ60/EZ70)
C371	1-126-960-11	ELECT	1uF	20%	50V (ED60/ED70/EZ60/EZ70)
C372	1-126-964-11	ELECT	10uF	20%	50V (ED60/ED70/EZ60/EZ70)
C373	1-126-964-11	ELECT	10uF	20%	50V (ED60/ED70/EZ60/EZ70)
C375	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (ED60/ED70/EZ60/EZ70)
C376	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V (ED60/ED70/EZ60/EZ70)
C377	1-104-664-11	ELECT	47uF	20%	16V (ED60/ED70/EZ60/EZ70)
C378	1-126-964-11	ELECT	10uF	20%	50V (ED60/ED70/EZ60/EZ70)
C379	1-126-961-11	ELECT	2.2uF	20%	50V (ED60/ED70/EZ60/EZ70)
C380	1-126-964-11	ELECT	10uF	20%	50V (ED60/ED70/EZ60/EZ70)
C381	1-104-664-11	ELECT	47uF	20%	16V (ED60/ED70/EZ60/EZ70)

Ref. No.	Part No.	Description			Remark
C382	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V (ED60/ED70/EZ60/EZ70)
C383	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (ED60/ED70/EZ60/EZ70)
C384	1-163-038-00	CERAMIC CHIP	0.1uF		25V (ED60/ED70/EZ60/EZ70)
C385	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V (ED60/ED70/EZ60/EZ70)
C386	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V (ED60/ED70/EZ60/EZ70)
C387	1-126-960-11	ELECT	1uF	20%	50V (ED60/ED70/EZ60/EZ70)
C400	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C401	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C402	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C403	1-126-163-11	ELECT	4.7uF	20%	50V
C404	1-126-157-11	ELECT	10uF	20%	16V
C405	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C406	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C407	1-126-163-11	ELECT	4.7uF	20%	50V
C408	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C409	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C411	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C412	1-163-224-11	CERAMIC CHIP	7PF	0.25PF	50V
C414	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C415	1-163-245-11	CERAMIC CHIP	56PF	5%	50V
C421	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C422	1-124-589-11	ELECT	47uF	20%	16V
C423	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C424	1-126-157-11	ELECT	10uF	20%	16V
C450	1-164-232-11	CERAMIC CHIP	0.01uF		50V (ED10/EZ10)
C451	1-124-589-11	ELECT	47uF	20%	16V
C600	1-126-163-11	ELECT	4.7uF	20%	50V
C601	1-124-261-00	ELECT	10uF	20%	50V
C602	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C603	1-126-935-11	ELECT	470uF	20%	16V
C604	1-124-589-11	ELECT	47uF	20%	16V
C605	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C607	1-124-589-11	ELECT	47uF	20%	16V
C608	1-126-933-11	ELECT	100uF	20%	16V
C609	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C611	1-124-589-11	ELECT	47uF	20%	16V
C701	1-126-933-11	ELECT	100uF	20%	16V
C702	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C703	1-104-664-11	ELECT	47uF	20%	16V
C706	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C707	1-126-163-11	ELECT	4.7uF	20%	50V
C708	1-126-933-11	ELECT	100uF	20%	16V
C709	1-126-933-11	ELECT	100uF	20%	16V
C710	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C711	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C712	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C713	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C714	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C715	1-126-933-11	ELECT	100uF	20%	16V
C716	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C717	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C718	1-126-933-11	ELECT	100uF	20%	16V (ED70/EZ70)

Ref. No.	Part No.	Description	Remark
C719	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	(ED70/EZ70)
C720	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	(ED70/EZ70)
C721	1-164-232-11	CERAMIC CHIP 0.01uF 50V	(ED70/EZ70)
C722	1-124-589-11	ELECT 47uF 20% 16V	
C902	1-126-925-11	ELECT 470uF 20% 10V	
C904	1-104-664-11	ELECT 47uF 20% 16V	
C908	1-126-960-11	ELECT 1uF 20% 50V	
C909	1-126-960-11	ELECT 1uF 20% 50V	(ED60/ED70/EZ60/EZ70)
		< CONNECTOR >	
* CN101	1-568-954-11	PIN, CONNECTOR 5P	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
CN102	1-779-723-11	CONNECTOR, BOARD TO BOARD 9P	
* CN103	1-766-716-11	CONNECTOR, BOARD TO BOARD 3P	
CN104	1-784-486-11	CONNECTOR, FFC/FPC 7P	(ED10/EZ10)
CN191	1-506-468-11	PIN, CONNECTOR 3P	
CN201	1-784-492-11	CONNECTOR, FFC/FPC 13P	(ED60/ED70/EZ60/EZ70)
CN202	1-784-487-11	CONNECTOR, FFC/FPC 8P	(ED10/ED40/EZ10/EZ40)
* CN203	1-560-892-00	PIN, CONNECTOR 4P	
* CN204	1-568-954-11	PIN, CONNECTOR 5P	(ED40/ED60/ED70/EZ70)
CN330	1-506-468-11	PIN, CONNECTOR 3P	
CN331	1-506-469-11	PIN, CONNECTOR 4P	
CN450	1-506-469-11	PIN, CONNECTOR 4P	
CN451	1-784-486-11	CONNECTOR, FFC/FPC 7P	(ED40/ED70/EZ70)
CN452	1-784-486-11	CONNECTOR, FFC/FPC 7P	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
CN453	1-784-484-11	CONNECTOR, FFC/FPC 5P	(ED10/EZ10)
CN454	1-784-484-11	CONNECTOR, FFC/FPC 5P	(ED60/EZ40/EZ60)
* CN600	1-568-936-11	PIN, CONNECTOR 9P	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
CN600	1-784-946-11	CONNECTOR, BOARD TO BOARD 9P	(ED10/EZ10)
CN701	1-691-170-11	PIN, CONNECTOR 13P	(ED70/EZ70)
* CN702	1-568-954-11	PIN, CONNECTOR 5P	(EZ70: NZ)
* CN901	1-568-937-11	PIN, CONNECTOR 10P	(ED60/ED70/EZ70: AS)
CN902	1-568-953-21	PIN, CONNECTOR 4P	(ED40)
CN903	1-506-469-11	PIN, CONNECTOR 4P	(EZ60/EZ70: NZ)
		< JACK >	
CNJ901	1-779-011-11	JACK, PIN 6P (LINE-1 IN/LINE-1 OUT)	(ED60/ED70/EZ60/EZ70)
CNJ902	1-779-012-21	JACK, PIN 5P (LINE-1 IN/LINE OUT)	(ED40)
CNJ903	1-779-010-11	JACK, PIN 4P (LINE IN/LINE OUT)	(ED10/EZ10/EZ40)
		< DIODE >	
D102	8-719-048-26	DIODE GL528V1	
D111	8-719-200-82	DIODE MPG06D-6052PKG3	
D164	8-719-200-82	DIODE MPG06D-6052PKG3	
D401	8-719-911-19	DIODE 1SS119-25TD	
D402	8-719-911-19	DIODE 1SS119-25TD	
D403	8-719-911-19	DIODE 1SS119-25TD	
D450	8-719-056-07	DIODE SLR-342MCT31 (ON/STANDBY)	(ED10/EZ10)
D603	8-719-911-19	DIODE 1SS119-25TD	
D606	8-719-200-82	DIODE MPG06D-6052PKG3	
D703	8-719-150-92	DIODE RD33ES-T1B	

Ref. No.	Part No.	Description	Remark
		< ENCAPSULATED COMPONENT >	
FL901	1-236-163-11	ENCAPSULATED COMPONENT	(EZ10/EZ40/EZ60/EZ70)
FL902	1-236-163-11	ENCAPSULATED COMPONENT	(EZ60/EZ70)
		< IC >	
IC130	8-759-481-46	IC LB1943	
IC161	8-759-579-70	IC HD6433977R-GA	(ED10/ED40/ED60/ED70)
IC161	8-759-579-71	IC HD6433977R-AZ	(EZ10/EZ40/EZ60)
IC161	8-759-579-72	IC HD6433977R-AS	(EZ70: AS)
IC161	8-759-579-73	IC HD6433977R-NZ	(EZ70: NZ)
IC162	8-759-580-62	IC MM1256AFBE	
IC163	8-759-575-70	IC M24C02-WMN6T	
IC201	8-759-562-59	IC HA118211BF	
IC202	8-759-295-66	IC BA7653AF-E2	(ED40/ED60/ED70/EZ70: AS)
IC301	8-759-526-64	IC NJM2521M (TE2)	(ED40)
IC350	8-759-486-92	IC LA7256	(ED60/ED70/EZ60/EZ70)
IC360	8-759-486-64	IC TDA9615H/N1,557	(ED60/ED70/EZ60/EZ70)
IC420	8-759-566-61	IC uPD16312GB-3BS	
IC450	8-742-042-00	IC SBX1986-51	(ED10/EZ10)
IC600	8-759-438-18	IC PQ12RD08	
IC601	8-759-701-56	IC NJM78M05FA	
IC602	8-759-471-81	IC PQ05RD11	
		< JUMPER RESISTOR >	
JR001	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR002	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR003	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR004	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR005	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR006	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR007	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR008	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR009	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR010	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR011	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR012	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR013	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR014	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR015	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR016	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR017	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR018	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR019	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR020	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR021	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR022	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR023	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR024	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR025	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR201	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR202	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70/EZ60/EZ70)
JR203	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR204	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)

Ref. No.	Part No.	Description	Remark
JR205	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70/EZ60/EZ70)
JR206	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70/EZ60/EZ70)
JR207	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70/EZ60/EZ70)
JR209	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR210	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR211	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR212	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR213	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR214	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR215	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR216	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR217	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR218	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR219	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR220	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR221	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR222	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR223	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR224	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR225	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR226	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR227	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR228	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR229	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70/EZ60/EZ70)
JR230	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR231	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR232	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR233	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR234	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR235	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR236	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR237	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR238	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR239	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR240	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR241	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
JR242	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR243	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR245	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR247	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR248	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR249	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR251	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR252	1-216-296-00	METAL CHIP 0 5% 1/8W	
JS203	1-216-296-00	METAL CHIP 0 5% 1/8W	(EZ70: NZ)
JS301	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED10/ED40/EZ10/EZ40)
JS305	1-216-295-00	METAL CHIP 0 5% 1/10W	
JS331	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED10/ED60/EZ10/EZ40/EZ60)
JS361	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED60/ED70/EZ60/EZ70)
JS401	1-216-295-00	METAL CHIP 0 5% 1/10W	
JS451	1-216-295-00	METAL CHIP 0 5% 1/10W	
JS701	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED60/EZ60)
JS702	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED60/EZ60)
JS703	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED70/EZ70)
JS707	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED10/ED40/ED60/EZ10/EZ40/EZ60)
JS708	1-216-295-00	METAL CHIP 0 5% 1/10W	(EXCEPT EZ70: NZ)
JS902	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40)
JS904	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED10/ED40/ED60/ED70)
JS905	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED60/ED70)
JS908	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED10/ED40/EZ10/EZ40)
		< COIL >	
L110	1-414-185-51	INDUCTOR 22uH (ED10/EZ10)	
L205	1-410-510-11	INDUCTOR 12uH	
L206	1-410-520-11	INDUCTOR 82uH	
L207	1-410-520-11	INDUCTOR 82uH	
L212	1-414-856-51	INDUCTOR 10uH	
L301	1-412-092-11	INDUCTOR 22mH	
L330	1-410-120-11	INDUCTOR 1.2mH (ED40/ED70/EZ70)	
L331	1-410-120-11	INDUCTOR 1.2mH	
L351	1-414-857-51	INDUCTOR 100uH (ED60/ED70/EZ60/EZ70)	
L400	1-414-184-51	INDUCTOR 15uH	
L401	1-414-185-51	INDUCTOR 22uH	
L402	1-414-185-51	INDUCTOR 22uH	
L403	1-414-185-51	INDUCTOR 22uH	
L600	1-414-187-51	INDUCTOR 47uH	
L601	1-414-856-51	INDUCTOR 10uH	
L602	1-414-856-51	INDUCTOR 10uH	
L701	1-414-179-51	INDUCTOR 2.2uH	
L702	1-414-856-51	INDUCTOR 10uH	
L703	1-414-856-51	INDUCTOR 10uH	
L704	1-414-856-51	INDUCTOR 10uH	
L705	1-414-856-51	INDUCTOR 10uH (ED70/EZ70)	
		< FLUORECENT INDICATOR >	
ND420	1-517-734-11	TUBE, FLUORESCENT INDICATOR	
		< PHOTO INTERRUPTER >	
PH100	8-749-013-23	PHOTO INTERRUPTER GP3S120	
PH101	8-749-013-23	PHOTO INTERRUPTER GP3S120	
		< IC LINK >	
⚠PS111	1-533-593-11	LINK, IC (2A)	
⚠PS330	1-533-586-31	LINK, IC (315mA)	
⚠PS600	1-533-593-11	LINK, IC (2A)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
⚠PS601	1-533-586-31	LINK, IC (315mA)			
		< TRANSISTOR >			
Q100	8-729-043-84	TRANSISTOR	PT380F3		
Q101	8-729-043-84	TRANSISTOR	PT380F3		
Q102	8-729-281-53	TRANSISTOR	2SC1815GR-TPE2		
Q161	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q191	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		(ED40/ED70/EZ70)
Q201	8-729-421-19	TRANSISTOR	UN2213-TX		
Q202	8-729-421-19	TRANSISTOR	UN2213-TX		
Q203	8-729-421-19	TRANSISTOR	UN2213-TX		
Q206	8-729-421-19	TRANSISTOR	UN2213-TX		
Q330	8-729-012-31	TRANSISTOR	2SC4040-TL2-Q		(ED40/ED70/EZ70)
Q331	8-729-900-51	TRANSISTOR	UN2115-QRS (TX)		(ED40/ED70/EZ70)
Q332	8-729-012-31	TRANSISTOR	2SC4040-TL2-Q		
Q333	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q334	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q335	8-729-900-51	TRANSISTOR	UN2115-QRS (TX)		
Q337	8-729-424-18	TRANSISTOR	UN2113-TX		
Q338	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q400	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX		
Q401	8-729-421-19	TRANSISTOR	UN2213-TX		
Q402	8-729-421-22	TRANSISTOR	UN2211-TX		
Q403	8-729-421-22	TRANSISTOR	UN2211-TX		
Q410	8-729-422-27	TRANSISTOR	2SD601A-QRS-TX		
Q701	8-729-106-68	TRANSISTOR	2SD1664-T100-R		
Q702	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX		(ED70/EZ70)
Q901	8-729-216-22	TRANSISTOR	2SB709A-QRS-TX		
		< RESISTOR >			
R100	1-249-437-11	CARBON	47K	5%	1/4W
R101	1-216-041-00	METAL CHIP	470	5%	1/10W
R102	1-249-437-11	CARBON	47K	5%	1/4W
R103	1-216-085-00	METAL CHIP	33K	5%	1/10W
R104	1-216-085-00	METAL CHIP	33K	5%	1/10W
R105	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R106	1-249-417-11	CARBON	1K	5%	1/4W
R107	1-249-400-11	CARBON	39	5%	1/4W
R108	1-249-400-11	CARBON	39	5%	1/4W
R110	1-249-429-11	CARBON	10K	5%	1/4W
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W
R112	1-216-073-00	METAL CHIP	10K	5%	1/10W
R113	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R114	1-216-049-00	METAL CHIP	1K	5%	1/10W
R115	1-216-049-00	METAL CHIP	1K	5%	1/10W
R116	1-216-103-00	METAL CHIP	180K	5%	1/10W
R117	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R118	1-216-049-00	METAL CHIP	1K	5%	1/10W
R119	1-216-103-00	METAL CHIP	180K	5%	1/10W
R120	1-216-049-00	METAL CHIP	1K	5%	1/10W
R121	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R122	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R130	1-216-085-00	METAL CHIP	33K	5%	1/10W
R131	1-216-085-00	METAL CHIP	33K	5%	1/10W
R132	1-216-089-00	METAL CHIP	47K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R160	1-216-041-00	METAL CHIP	470	5%	1/10W
R161	1-216-073-00	METAL CHIP	10K	5%	1/10W
R162	1-216-049-00	METAL CHIP	1K	5%	1/10W
R163	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R164	1-216-073-00	METAL CHIP	10K	5%	1/10W
R165	1-216-049-00	METAL CHIP	1K	5%	1/10W
R166	1-216-059-00	METAL CHIP	2.7K	5%	1/10W (ED10/EZ40)
R166	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (ED40/EZ60)
R166	1-216-069-00	METAL CHIP	6.8K	5%	1/10W (ED60/EZ70: AS)
R166	1-216-073-00	METAL CHIP	10K	5%	1/10W (ED70/EZ70: NZ)
R166	1-216-051-00	METAL CHIP	1.2K	5%	1/10W (EZ10)
R167	1-216-073-00	METAL CHIP	10K	5%	1/10W
R168	1-247-863-91	CARBON	22K	5%	1/4W
R169	1-216-049-00	METAL CHIP	1K	5%	1/10W
R170	1-216-121-91	RES, CHIP	1M	5%	1/10W
R171	1-216-049-00	METAL CHIP	1K	5%	1/10W
R172	1-216-073-00	METAL CHIP	10K	5%	1/10W
R173	1-216-073-00	METAL CHIP	10K	5%	1/10W
R174	1-216-073-00	METAL CHIP	10K	5%	1/10W
R175	1-216-113-00	METAL CHIP	470K	5%	1/10W
R176	1-216-089-00	METAL CHIP	47K	5%	1/10W
R177	1-216-105-91	RES, CHIP	220K	5%	1/10W
R178	1-216-089-00	METAL CHIP	47K	5%	1/10W
R179	1-216-089-00	METAL CHIP	47K	5%	1/10W
R180	1-216-089-00	METAL CHIP	47K	5%	1/10W
R181	1-216-041-00	METAL CHIP	470	5%	1/10W
R182	1-216-049-00	METAL CHIP	1K	5%	1/10W
R183	1-216-041-00	METAL CHIP	470	5%	1/10W
R184	1-216-073-00	METAL CHIP	10K	5%	1/10W
R185	1-216-073-00	METAL CHIP	10K	5%	1/10W
R186	1-249-417-11	CARBON	1K	5%	1/4W
R187	1-216-049-00	METAL CHIP	1K	5%	1/10W
R188	1-216-049-00	METAL CHIP	1K	5%	1/10W
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R191	1-216-103-00	METAL CHIP	180K	5%	1/10W
R192	1-216-049-00	METAL CHIP	1K	5%	1/10W
R193	1-216-121-91	RES, CHIP	1M	5%	1/10W
R194	1-249-437-11	CARBON	47K	5%	1/4W (ED40/ED70/EZ70)
R195	1-216-037-00	METAL CHIP	330	5%	1/10W
R196	1-216-037-00	METAL CHIP	330	5%	1/10W
R198	1-216-089-00	METAL CHIP	47K	5%	1/10W
R199	1-216-041-00	METAL CHIP	470	5%	1/10W
R201	1-216-041-00	METAL CHIP	470	5%	1/10W
R202	1-216-083-00	METAL CHIP	27K	5%	1/10W
R203	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R205	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R206	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R207	1-216-051-00	METAL CHIP	1.2K	5%	1/10W (ED10/EZ10)
R207	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (ED40/ED60/ED70/EZ40/EZ60/EZ70)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description				Remark
R208	1-216-063-91	RES, CHIP	3.9K	5%	1/10W	(ED10/EZ10)
R208	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(ED40/ED60/ED70/EZ40/EZ60/EZ70)
R209	1-216-127-11	METAL CHIP	1.8M	5%	1/10W	
R210	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R212	1-216-025-91	RES, CHIP	100	5%	1/10W	(ED40/ED60/ED70/EZ70)
R214	1-247-807-31	CARBON	100	5%	1/4W	
R215	1-247-807-31	CARBON	100	5%	1/4W	
R216	1-216-095-00	METAL CHIP	82K	5%	1/10W	(EZ10/EZ40/EZ60/EZ70)
R217	1-216-025-91	RES, CHIP	100	5%	1/10W	
R218	1-216-025-91	RES, CHIP	100	5%	1/10W	
R220	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED40/ED60/ED70/EZ70: AS)
R221	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED40/ED60/ED70/EZ70: AS)
R224	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R301	1-216-103-00	METAL CHIP	180K	5%	1/10W	
R302	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R303	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R304	1-216-025-91	RES, CHIP	100	5%	1/10W	
R305	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R306	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R307	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R308	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R309	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R310	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R313	1-216-089-00	METAL CHIP	47K	5%	1/10W	(ED40)
R314	1-216-295-00	METAL CHIP	0	5%	1/10W	
R315	1-216-041-00	METAL CHIP	470	5%	1/10W	
R316	1-216-077-00	METAL CHIP	15K	5%	1/10W	(ED40)
R317	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R318	1-249-421-11	CARBON	2.2K	5%	1/4W	
R319	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R323	1-216-125-00	METAL CHIP	1.5M	5%	1/10W	
R330	1-249-394-11	CARBON	12	5%	1/4W	F (ED40/ED70/EZ70)
R331	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED40/ED70/EZ70)
R332	1-216-083-00	METAL CHIP	27K	5%	1/10W	(ED40/ED70/EZ70)
R334	1-216-295-00	METAL CHIP	0	5%	1/10W	
R335	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R337	1-216-295-00	METAL CHIP	0	5%	1/10W	
R338	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R339	1-216-081-00	METAL CHIP	22K	5%	1/10W	(ED10/ED60/EZ10/EZ40/EZ60)
R339	1-216-083-00	METAL CHIP	27K	5%	1/10W	(ED40/ED70/EZ70)
R340	1-249-389-11	CARBON	4.7	5%	1/4W	F (ED10/ED60/EZ10/EZ40/EZ60)
R340	1-249-395-11	CARBON	15	5%	1/4W	F (ED40/ED70/EZ70)
R341	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R342	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R344	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R345	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R346	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R347	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R350	1-216-081-00	METAL CHIP	22K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R351	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R352	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R353	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R354	1-216-033-00	METAL CHIP	220	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R355	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R360	1-216-049-00	METAL CHIP	1K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R361	1-216-049-00	METAL CHIP	1K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R368	1-216-133-00	METAL CHIP	3.3M	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R370	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R371	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	(ED60/ED70/EZ60/EZ70)
R372	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R378	1-249-434-11	CARBON	27K	5%	1/4W	(ED60/ED70/EZ60/EZ70)
R379	1-216-073-00	METAL CHIP	10K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R380	1-249-413-11	CARBON	470	5%	1/4W	(ED60/ED70/EZ60/EZ70)
R381	1-249-413-11	CARBON	470	5%	1/4W	(ED60/ED70/EZ60/EZ70)
R382	1-249-413-11	CARBON	470	5%	1/4W	(ED60/ED70/EZ60/EZ70)
R383	1-249-413-11	CARBON	470	5%	1/4W	(ED60/ED70/EZ60/EZ70)
R384	1-216-091-00	METAL CHIP	56K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R385	1-216-091-00	METAL CHIP	56K	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R386	1-216-041-00	METAL CHIP	470	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R387	1-216-041-00	METAL CHIP	470	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R400	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R401	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R402	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R403	1-216-041-00	METAL CHIP	470	5%	1/10W	
R404	1-249-429-11	CARBON	10K	5%	1/4W	
R405	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R406	1-216-041-00	METAL CHIP	470	5%	1/10W	
R407	1-216-121-91	RES, CHIP	1M	5%	1/10W	
R408	1-216-025-91	RES, CHIP	100	5%	1/10W	
R409	1-216-295-00	METAL CHIP	0	5%	1/10W	
R410	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R411	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	
R412	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R413	1-249-417-11	CARBON	1K	5%	1/4W	
R414	1-249-417-11	CARBON	1K	5%	1/4W	
R421	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R422	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R423	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R424	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R425	1-216-085-00	METAL CHIP	33K	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R426	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R428	1-216-041-00	METAL CHIP	470	5%	1/10W	
R429	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R432	1-249-429-11	CARBON	10K	5%	1/4W	
R450	1-216-029-00	METAL CHIP	150	5%	1/10W	(ED10/EZ10)
R451	1-216-021-00	METAL CHIP	68	5%	1/10W	
R452	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R453	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	(ED10/EZ10)
R454	1-249-421-11	CARBON	2.2K	5%	1/4W	(ED10/EZ10)
R455	1-216-021-00	METAL CHIP	68	5%	1/10W	
R456	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R457	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R458	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R459	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R460	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R461	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R462	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R463	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R464	1-216-081-00	METAL CHIP	22K	5%	1/10W	(ED10/ED40/ED60/ED70/EZ70)
R465	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R466	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R468	1-249-431-11	CARBON	15K	5%	1/4W	
R469	1-249-437-11	CARBON	47K	5%	1/4W	
R470	1-249-437-11	CARBON	47K	5%	1/4W	
R602	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R608	1-216-471-11	METAL OXIDE	27	5%	3W	F
R609	1-215-857-11	METAL OXIDE	10	5%	1W	F
R616	1-249-419-11	CARBON	1.5K	5%	1/4W	
⚠R702	1-212-893-00	FUSIBLE	330	5%	1/4W	F
R703	1-216-041-00	METAL CHIP	470	5%	1/10W	
R704	1-216-041-00	METAL CHIP	470	5%	1/10W	
R705	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R706	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R707	1-216-049-00	METAL CHIP	1K	5%	1/10W	(ED70/EZ70)
R709	1-247-807-31	CARBON	100	5%	1/4W	
R901	1-216-021-00	METAL CHIP	68	5%	1/10W	
R902	1-249-407-11	CARBON	150	5%	1/4W	
R904	1-249-408-11	CARBON	180	5%	1/4W	
R905	1-216-025-91	RES, CHIP	100	5%	1/10W	
R906	1-216-021-00	METAL CHIP	68	5%	1/10W	
R907	1-216-041-00	METAL CHIP	470	5%	1/10W	
R908	1-216-041-00	METAL CHIP	470	5%	1/10W	(ED60/ED70/EZ60/EZ70)
R913	1-216-295-00	METAL CHIP	0	5%	1/10W	
R914	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED60/ED70/EZ60/EZ70)
		< SWITCH >				
S100	1-771-155-11	SWITCH, ROTARY (CAM ENCODER)				
S101	1-762-108-11	SWITCH, PUSH (1 KEY) (REC PROOF)				
S450	1-771-574-21	SWITCH, TACTILE (I/⏻) (ED10/EZ10)				
S451	1-771-574-21	SWITCH, TACTILE (⏏EJECT) (ED10/EZ10)				
S452	1-771-574-21	SWITCH, TACTILE (● REC) (ED10/EZ10)				

Ref. No.	Part No.	Description				Remark
S453	1-771-574-21	SWITCH, TACTILE (PROGRAM/TRACKING +)				(ED10/EZ10)
S454	1-771-574-21	SWITCH, TACTILE (PROGRAM/TRACKING +)				(ED40/ED60/ED70/EZ40/EZ60/EZ70)
S455	1-771-574-21	SWITCH, TACTILE (COLOR SYSTEM)				(ED40/ED60/ED70/EZ40/EZ60/EZ70)
S456	1-771-574-21	SWITCH, TACTILE (COLOR SYSTEM)				(ED10/EZ10)
S457	1-771-574-21	SWITCH, TACTILE (❚❚ PAUSE) (ED10/EZ10)				
S458	1-771-574-21	SWITCH, TACTILE (PROGRAM/TRACKING -)				(ED10/EZ10)
S459	1-771-574-21	SWITCH, TACTILE (PROGRAM/TRACKING -)				(ED40/ED60/ED70/EZ40/EZ60/EZ70)
S460	1-771-574-21	SWITCH, TACTILE (ONE TOUCH TUNING/ RF CHANNEL)(ED10/EZ10)				
S461	1-771-574-21	SWITCH, TACTILE (ONE TOUCH TUNING/RF CHANNEL)				(ED40/ED60/ED70/EZ40/EZ60/EZ70)
S462	1-771-574-21	SWITCH, TACTILE (SP/LP (SP/EP))				(ED40/ED60/ED70/EZ40/EZ60/EZ70)
S463	1-571-308-11	SWITCH, SLIDE (NTSC PB)				(ED10/ED40/ED60/ED70/EZ70)
S464	1-571-588-11	SWITCH, SLIDE (NTSC PB) (EZ10/EZ40/EZ60)				
S466	1-771-574-21	SWITCH, TACTILE (INPUT SELECT)				(ED4 0/ED60/ED70/EZ40/EZ60/EZ70)
		< TRANSFORMER >				
T330	1-423-415-11	TRANSFORMER, BIAS OSCILLATION				(ED40/ED70/EZ70)
T331	1-423-413-11	TRANSFORMER, BIAS OSCILLATION				(ED40/ED70/EZ70)
T331	1-423-414-11	TRANSFORMER, BIAS OSCILLATION				(ED10/ED60/EZ10/EZ40/EZ60)
		< TUNER >				
TU701	1-693-415-11	TUNER, MOD/IF SOLID TYPE (AERIAL)				(ED10/ED40/ED60/ED70)
TU701	1-693-416-11	TUNER, MOD/IF SOLID TYPE (AERIAL)				(EZ10/EZ40/EZ60/EZ70)
		< VIBRATOR >				
X161	1-767-855-11	VIBRATOR, CRYSTAL (10MHz)				
X162	1-579-463-11	VIBRATOR, CRYSTAL (32.768kHz)				
X201	1-760-708-11	VIBRATOR, CRYSTAL (4.433619MHz)				
* X202	1-760-709-11	VIBRATOR, CRYSTAL (3.579545MHz)				(ED10/ED40/ED60/ED70/EZ70)
X401	1-767-856-11	VIBRATOR, CRYSTAL (17.734475MHz)				
*	A-6791-860-A	MF-317 BOARD, COMPLETE (ED60)				
*	A-6791-865-A	MF-317 BOARD, COMPLETE (EZ40/EZ60)				
*	A-6791-868-A	MF-317 BOARD, COMPLETE (ED40)				
*	A-6791-874-A	MF-317 BOARD, COMPLETE (ED70)				
*	A-6791-877-A	MF-317 BOARD, COMPLETE (EZ70)				
		**********************				(Ref.No.2,000 Series)
		< CAPACITOR >				
C461	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C481	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	(ED40/ED60/ED70/EZ70)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MF-317 NK-11

	Ref. No.	Part No.	Description	Value	Tol.	Rating	Remark
			< CONNECTOR >				
	CN461	1-784-449-11	CONNECTOR, FFC/FPC 7P				(ED40/ED70/EZ70)
*	CN481	1-568-943-11	PIN, CONNECTOR 5P				(ED40/ED60/ED70/EZ70)
	CN482	1-784-447-11	CONNECTOR, FFC/FPC 5P				(ED60/EZ40/EZ60)
			< JACK >				
	CNJ481	1-766-861-11	JACK, PIN (3P) (LINE-2 IN)				(ED60/ED70/EZ70)
	CNJ481	1-784-570-11	JACK, PIN 3P (LINE-2 IN)				(ED40)
			< DIODE >				
	D461	8-719-056-07	DIODE SLR-342MCT31 (ON/STANDBY)				
	D462	8-719-045-62	DIODE SLR-342VCT31 (SYNCHRO REC)				(ED40/ED70/EZ70)
	D480	8-719-017-09	DIODE 02DZ6.2-TPH3				(ED40/ED60/ED70/EZ70)
	D481	8-719-071-15	DIODE HZM6.8ZWA1TL				(ED40/ED60/ED70/EZ70)
	D490	8-719-071-15	DIODE HZM6.8ZWA1TL				(ED40/ED60/ED70/EZ70)
	D491	8-719-071-15	DIODE HZM6.8ZWA1TL				(ED40/ED60/ED70/EZ70)
			< ENCAPSULATED COMPONENT >				
	FL491	1-236-163-11	ENCAPSULATED COMPONENT				(EZ70)
	FL492	1-236-163-11	ENCAPSULATED COMPONENT				(EZ70)
			< IC >				
	IC461	8-749-011-05	IC GP1U28X				
			< JUMPER RESISTOR >				
	JR400	1-216-296-00	METAL CHIP	0	5%	1/8W	
	JR402	1-216-296-00	METAL CHIP	0	5%	1/8W	
	JR403	1-216-296-00	METAL CHIP	0	5%	1/8W	
	JR404	1-216-296-00	METAL CHIP	0	5%	1/8W	
	JR405	1-216-296-00	METAL CHIP	0	5%	1/8W	
	JS490	1-216-296-00	METAL CHIP	0	5%	1/8W	(ED40/ED60/ED70/EZ70)
	JS491	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED40)
	JS492	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED40/ED60/ED70)
	JS493	1-216-296-00	METAL CHIP	0	5%	1/8W	(ED40/ED60/ED70)
	JS494	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED60/ED70/EZ70)
			< RESISTOR >				
	R461	1-216-029-00	METAL CHIP	150	5%	1/10W	
	R462	1-216-037-00	METAL CHIP	330	5%	1/10W	(ED40/ED70/EZ70)
	R480	1-216-021-00	METAL CHIP	68	5%	1/10W	(ED40/ED60/ED70/EZ70)
	R490	1-216-041-00	METAL CHIP	470	5%	1/10W	(ED40)
	R490	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED60/ED70/EZ70)
	R491	1-216-041-00	METAL CHIP	470	5%	1/10W	(ED40)
	R491	1-216-295-00	METAL CHIP	0	5%	1/10W	(ED60/ED70/EZ70)
			< SWITCH >				
	S461	1-762-196-21	SWITCH, TACT (I/⏻)				
	S462	1-762-196-21	SWITCH, TACT (SYNCHRO REC)				(ED40/ED70/EZ70)

	Ref. No.	Part No.	Description	Value	Tol.	Rating	Remark
*		A-6791-591-A	NK-11 BOARD, COMPLETE (ED70/EZ70: NZ) **********************				(Ref.No.2,000 Series)
			< CAPACITOR >				
	C003	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
	C004	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
	C005	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
	C006	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
	C007	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
	C008	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
	C009	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
	C010	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
	C011	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
	C012	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
	C013	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
	C014	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
	C015	1-163-229-11	CERAMIC CHIP	12PF	5%	50V	
	C016	1-163-222-11	CERAMIC CHIP	5PF	0.25PF	50V	
	C017	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V	
	C018	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V	
	C019	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	
	C020	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
	C021	1-113-642-11	TANTAL. CHIP	47uF	10%	10V	
	C022	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
	C023	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	
			< CONNECTOR >				
*	CN001	1-691-183-11	CONNECTOR (BOARD TO BOARD) 13P				
			< DIODE >				
	D001	8-719-066-72	DIODE BB135				
			< FERRITE BEAD >				
	FB001	1-543-813-21	FERRITE 0uH				
	FB002	1-543-813-21	FERRITE 0uH				
	FB003	1-543-813-21	FERRITE 0uH				
			< IC >				
	IC001	8-759-526-43	IC TDA9874H/V1,118				
			< COIL >				
	L006	1-412-945-11	INDUCTOR 3.3uH				
			< IC LINK >				
⚠	PS001	1-576-122-21	LINK, IC (400mA)				

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R001	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R002	1-216-073-00	METAL CHIP	10K	5%	1/10W
R003	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R004	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R005	1-216-041-00	METAL CHIP	470	5%	1/10W
R006	1-216-041-00	METAL CHIP	470	5%	1/10W
R007	1-216-001-00	METAL CHIP	10	5%	1/10W
R008	1-216-001-00	METAL CHIP	10	5%	1/10W
R009	1-216-001-00	METAL CHIP	10	5%	1/10W
R010	1-216-001-00	METAL CHIP	10	5%	1/10W
R011	1-216-304-11	METAL CHIP	3.3	5%	1/10W
R012	1-216-304-11	METAL CHIP	3.3	5%	1/10W
R013	1-216-001-00	METAL CHIP	10	5%	1/10W
R014	1-216-295-00	METAL CHIP	0	5%	1/10W
R015	1-216-295-00	METAL CHIP	0	5%	1/10W
R016	1-216-033-00	METAL CHIP	220	5%	1/10W
		< VIBRATOR >			
X001	1-767-897-11	VIBRATOR, CRYSTAL (24.576MHz)			

Ref. No.	Part No.	Description			Remark
	1-468-312-12	POWER BLOCK (HS-921SF) (ED10)			
	1-468-312-22	POWER BLOCK (HS-921SF1)			
		(ED40/ED60/ED70)			
		************************			
		(Ref.No. 3,000 Series)			
		< CAPACITOR >			
⚠C101	1-115-165-11	FILM	0.1uF		250V
⚠C102	1-115-165-11	FILM	0.1uF		250V
⚠C108	9-980-012-01	ELECT	150uF		450V
C207	1-126-964-11	ELECT	10uF		50V
C401	1-126-967-11	ELECT	47uF		50V
		< DIODE >			
⚠D102	8-719-312-16	DIODE EG01			
⚠D104	8-719-026-52	DIODE 10ELS2			
⚠D106	8-719-100-30	DIODE RD12ES			
⚠D201	8-719-018-83	DIODE D2S4M			
⚠D401	8-719-052-89	DIODE D1NL40			
⚠D501	8-719-026-52	DIODE 10ELS2			
		< FUSE >			
⚠F101	1-532-388-31	FUSE (2.0A/250V)			
		< IC >			
⚠IC101	9-939-634-01	IC MIP-164			
⚠IC201	8-759-420-19	IC AN1431T			
		< PHOTO COUPLER >			
⚠PC101	8-749-924-84	COUPLER, PHOTO PS2561			

Ref. No.	Part No.	Description			Remark
	1-468-311-11	POWER BLOCK (SR-718) (EZ10)			
	1-468-311-21	POWER BLOCK (SR-708) (EZ40/EZ60/EZ70)			
		********************			
		(Ref.No. 4,000 Series)			
		< CAPACITOR >			
C112	1-130-495-51	FILM	0.1uF		50V
C114	1-130-495-51	FILM	0.1uF		50V
C115	1-130-495-51	FILM	0.1uF		50V
		< DIODE >			
⚠D107	9-900-534-01	DIODE ERA18-02			
⚠D108	9-900-534-01	DIODE ERA18-02			
D205	9-900-534-01	DIODE ERA18-02			
		< FUSE >			
⚠F101	1-532-388-31	FUSE (2.0A/250V)			
		< IC >			
⚠IC201	8-759-420-19	IC AN1431T			
		< PHOTO COUPLER >			
⚠PC101	8-749-924-84	COUPLER, PHOTO PS2561			
		< RESISTOR >			
⚠R208	9-908-233-01	FUSIBLE	0.47		1/4W

Ref. No.	Part No.	Description			Remark
*	A-6791-858-A	RJ-82 BOARD, COMPLETE (ED60/ED70)			
*	A-6791-864-A	RJ-82 BOARD, COMPLETE (EZ60)			
*	A-6791-867-A	RJ-82 BOARD, COMPLETE (ED40)			
*	A-6791-876-A	RJ-82 BOARD, COMPLETE (EZ70: AS)			
*	A-6791-879-A	RJ-82 BOARD, COMPLETE (EZ70: NZ)			
		*********************			
		(Ref.No.1,000 Series)			
		< CAPACITOR >			
C951	1-126-160-11	ELECT	1uF	20%	50V
			(ED40/ED60/ED70/EZ70: AS)		
C952	1-126-160-11	ELECT	1uF	20%	50V
			(ED40/ED60/ED70/EZ70: AS)		
C960	1-126-925-11	ELECT	470uF	20%	10V
					(EZ70: NZ)
C961	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
					(EZ70: NZ)
C962	1-164-505-11	CERAMIC CHIP	2.2uF		16V
					(EZ70: NZ)
C963	1-124-589-11	ELECT	47uF	20%	16V
					(EZ70: NZ)
		< CONNECTOR >			
* CN951	1-568-948-11	PIN, CONNECTOR 10P (ED60/ED70/EZ70: AS)			
* CN952	1-568-942-21	PIN, CONNECTOR 4P (ED40)			
* CN953	1-568-942-11	PIN, CONNECTOR 4P (EZ60/EZ70: NZ)			
* CN954	1-568-943-11	PIN, CONNECTOR 5P (EZ70: NZ)			
		< JACK >			
CNJ951	1-565-726-11	JACK, PIN 3P (LINE-3 IN (SAT IN))			
		(ED60/ED70/EZ70: AS)			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
CNJ951	1-784-817-11	JACK, PIN 3P (LINE-3 IN (SAT IN)) (ED40)	
CNJ952	1-784-816-11	JACK, PIN 2P (LINE-2 OUT (AUDIO))	(ED60/ED70/EZ60/EZ70)
CNJ953	1-784-818-11	JACK, PIN 2P (SAT DEC) (EZ70: NZ)	
		< DIODE >	
D951	1-216-295-00	METAL CHIP 0 5% 1/10W (EZ70: NZ)	
D951	8-719-017-09	DIODE 02DZ6.2-TPH3	(ED40/ED60/ED70/EZ70: AS)
D952	8-719-017-09	DIODE 02DZ6.2-TPH3 (EZ70: NZ)	
		< ENCAPSULATED COMPONENT >	
FL951	1-236-163-11	ENCAPSULATED COMPONENT (EZ70: AS)	
FL952	1-236-163-11	ENCAPSULATED COMPONENT (EZ70: AS)	
		< IC >	
IC951	8-759-433-44	IC MM1031XML (EZ70: NZ)	
		< JUMPER RESISTOR >	
JR951	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR953	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR954	1-216-296-00	METAL CHIP 0 5% 1/8W	
JS951	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70)
JS952	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70)
JS954	1-216-295-00	METAL CHIP 0 5% 1/10W	(EZ70: NZ)
JS955	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40/ED60/ED70/EZ60/EZ70: AS)
JS956	1-216-295-00	METAL CHIP 0 5% 1/10W	(EZ70: NZ)
JS957	1-216-296-00	METAL CHIP 0 5% 1/8W	(ED40)
		< RESISTOR >	
R951	1-216-021-00	METAL CHIP 68 5% 1/10W	(ED40/ED60/ED70/EZ70: AS)
R952	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70/EZ70: AS)
R953	1-216-295-00	METAL CHIP 0 5% 1/10W	(ED40/ED60/ED70/EZ70: AS)
R954	1-216-041-00	METAL CHIP 470 5% 1/10W	(ED60/ED70/EZ60/EZ70)
R955	1-216-041-00	METAL CHIP 470 5% 1/10W	(ED60/ED70/EZ60/EZ70)
R956	1-216-021-00	METAL CHIP 68 5% 1/10W	(EZ70: NZ)
R957	1-216-021-00	METAL CHIP 68 5% 1/10W	(EZ70: NZ)
R958	1-216-097-00	METAL CHIP 100K 5% 1/10W	(ED40/ED60/ED70/EZ70: AS)
R959	1-216-097-00	METAL CHIP 100K 5% 1/10W	(ED40/ED60/ED70/EZ70: AS)

MISCELLANEOUS
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Ref. No.	Part No.	Description	Remark
10	1-790-537-11	CABLE, FLAT (FFC) (FDS-5) (ED10/EZ10)	
52	1-790-536-11	CABLE, FLAT (FFC) (FMD-13) (ED10/EZ10)	
⚠56	1-777-854-21	CORD, POWER (ED10)	
⚠56	1-777-855-22	CORD, POWER (EZ10)	
111	1-790-533-11	CABLE, FLAT (FFC) (FDM-6)	
114	1-790-534-11	CABLE, FLAT (FFC) (FMF-36)	(ED60/EZ40/EZ60)
114	1-790-535-11	CABLE, FLAT (FFC) (FMF-33)	(ED40/ED70/EZ70)
123	1-762-844-21	SWITCH, ROTARY (ED70/EZ70)	
⚠157	1-777-854-21	CORD, POWER (ED40/ED60/ED70)	
⚠157	1-777-855-22	CORD, POWER (EZ40/EZ60/EZ70)	
704	1-500-144-11	HEAD, FE	
768	1-759-453-11	DRUM ASSY DZH-89A-R (ED10/EZ10)	
768	8-839-037-04	DRUM ASSY DZH-74E/Z-RP (ED40/EZ40)	
768	8-839-045-02	DRUM ASSY DZH-95A/Z-RP	(ED60/ED70/EZ60/EZ70)
M902	1-698-971-11	MOTOR, DC (CAPSTAN)	
M903	X-3947-577-1	MOTOR ASSY, CAM	

****
HARDWARE LIST
****

Ref. No.	Part No.	Description	Remark
#1	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
#2	7-682-147-01	SCREW +P 3X6	
#3	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#4	7-685-133-19	SCREW (DIA. 2.6) (IT3B)	

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-418-159-11	COMMANDER, STANDARD (RMT-V245C)	(EZ60)
	1-418-160-11	COMMANDER, STANDARD (RMT-V248C)	(ED10)
	1-418-161-11	COMMANDER, STANDARD (RMT-V247C)	(ED60)
	1-418-161-21	COMMANDER, STANDARD (RMT-V247D)	(ED70)
	1-475-614-11	COMMANDER, STANDARD (RMT-V245) (EZ70)	
	1-475-614-21	COMMANDER, STANDARD (RMT-V245A)	(EZ10/EZ40)
	1-475-616-11	COMMANDER, STANDARD (RMT-V247)	(ED40)
⚠	1-569-008-21	ADAPTOR, CONVERSION 2P	(ED10: ME, SG/ED40: ME, SG/ED60: ME, SG)
	1-696-593-11	CORD, CONNECTION (PAL) (ANT) 1.5m	
	3-709-128-01	COVER, BATTERY (for RMT-V245/V245A/V245C)	(EZ10/EZ40/EZ60/EZ70)
	3-709-133-11	COVER, BATTERY (for RMT-V247/V245C/V247D)	(ED40/ED60/ED70)
	3-709-322-01	COVER, BATTERY (for RMT-V248C) (ED10)	
	3-865-382-11	MANUAL, INSTRUCTION (ENGLISH) (ED70)	
	3-865-383-11	MANUAL, INSTRUCTION (ENGLISH) (EZ70)	
	3-865-384-11	MANUAL, INSTRUCTION (ENGLISH) (ED60)	
	3-865-384-21	MANUAL, INSTRUCTION (ARABIC)	(ED60: ME, SG)
	3-865-384-31	MANUAL, INSTRUCTION (PERSIAN)	(ED60: SG)
	3-865-384-41	MANUAL, INSTRUCTION (URDU) (ED60: SG)	
	3-865-384-51	MANUAL, INSTRUCTION (RUSSIAN)	(ED60: PS, SG)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
	3-865-385-11	MANUAL, INSTRUCTION (ENGLISH)	(EZ40/EZ60)
	3-865-386-11	MANUAL, INSTRUCTION (ENGLISH) (ED40)	
	3-865-386-21	MANUAL, INSTRUCTION (ARABIC)	(ED40: ME, SG)
	3-865-386-31	MANUAL, INSTRUCTION (PERSIAN)	(ED40: SG)
	3-865-386-41	MANUAL, INSTRUCTION (URDU) (ED40: SG)	
	3-865-386-51	MANUAL, INSTRUCTION (RUSSIAN)	(ED40: PS, SG)
	3-865-387-11	MANUAL, INSTRUCTION (ENGLISH)	(ED10: MPS)
	3-865-387-12	MANUAL, INSTRUCTION (ENGLISH)	(ED10: ME, PS, SG)
	3-865-387-21	MANUAL, INSTRUCTION (ARABIC)	(ED10: ME, SG)
	3-865-387-31	MANUAL, INSTRUCTION (PERSIAN)	(ED10: SG)
	3-865-387-41	MANUAL, INSTRUCTION (URDU) (ED10: SG)	
	3-865-387-51	MANUAL, INSTRUCTION (RUSSIAN)	(ED10: PS, SG)
	3-865-387-61	MANUAL, INSTRUCTION (SWAHILI)	(ED10: PS)
	3-865-388-11	MANUAL, INSTRUCTION (ENGLISH) (EZ10)	
*	3-961-581-01	SHEET, PROTECTION (ED10/EZ10)	
*	3-979-710-01	SPACER (ED10/EZ10)	

9-921-711-11

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Home A&V Products Company

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